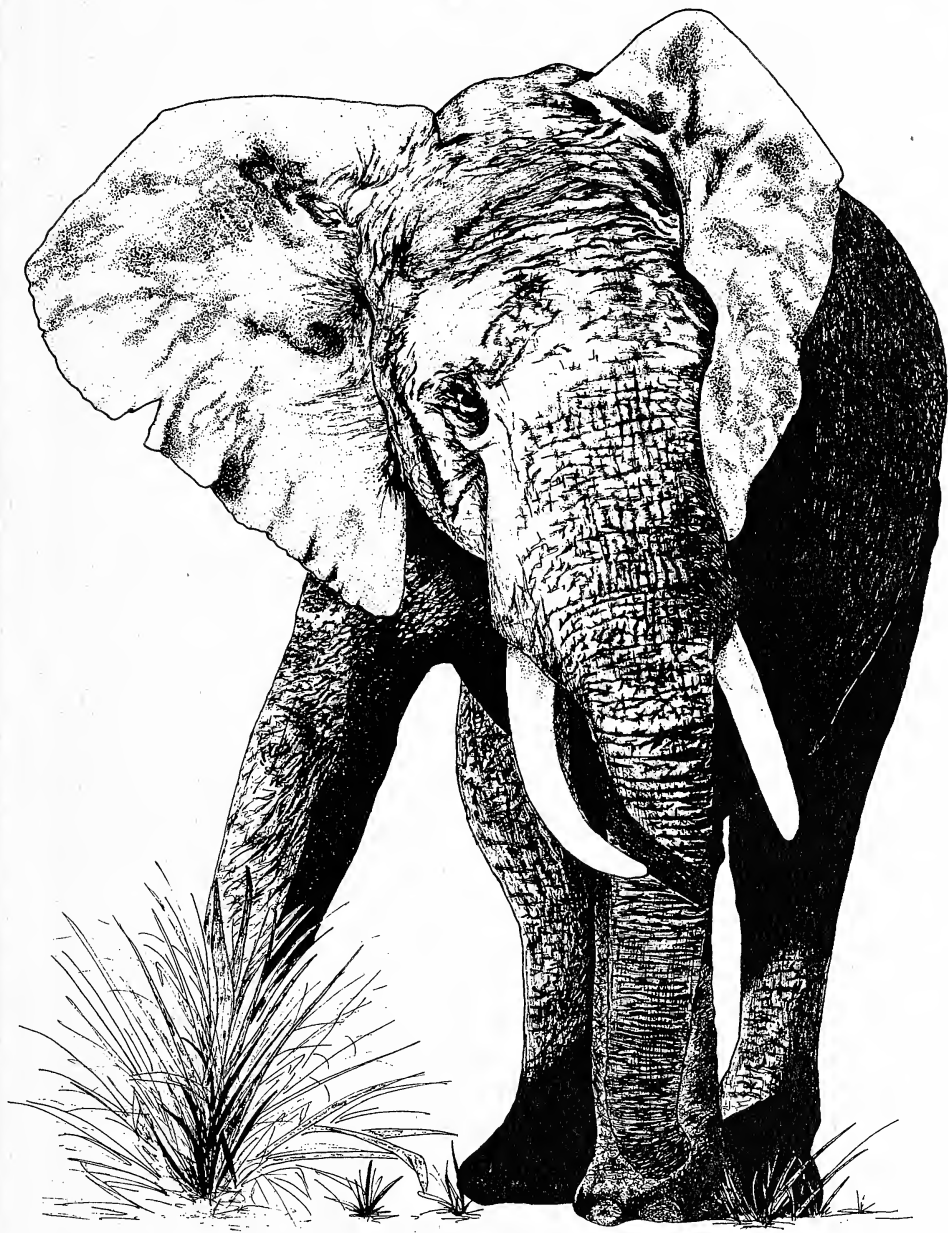


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ANIMAL KEEPERS' **F O R U M**



**The Journal of the American
Association of Zoo Keepers, Inc.
JANUARY 2003**

Managing Editor: Susan D. Chan • **Associate Editors** • Gretchen Ziegler, Sequoia Park Zoo & Kayla Grams, Lovell, WY • **Enrichment Options Coordinators:** Jan Roletto, Arcata, CA & Dawn Neptune, Utah's Hogle Zoo • **Legislative Outlook Column Coordinator:** Georgann B. Johnston, Sacramento, CA. • **ABC's Column Coordinator:** Diana Guerrero, Big Bear Lake, CA • **Reactions Column Coordinator:** William K. Baker, Jr., Little Rock Zoo • **The Water Column Coordinators:** Dan Conklin and Kevin Shelton, The Florida Aquarium and Bruce Elkins, Indianapolis Zoo

Animal Keepers' Forum is published monthly by the American Association of Zoo Keepers, Inc., 3601 S.W. 29th Street, Suite 133, Topeka, KS 6661-2054. Ten dollars of each membership fee goes toward the annual publication costs of Animal Keepers' Forum. Postage paid at Topeka, KS.

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AAZK Enrichment Notebook - Lee Houts, Folsom City Zoo

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About the Cover.....

*This month's cover features an African Elephant (*Loxodonta africana*) drawn by Christine McKnight, a keeper at the Minnesota Zoo in Apple Valley, MN. The African elephant stands between 10-14 ft. tall and can weigh up to seven tons. Like their Asian relatives, African elephants live in matriarchal family units typically comprised of 9-11 females and their young. The matriarch, usually the oldest and largest female, will lead the herd in search of food and water over a home range of 10-20 square miles; adult males may have a range up to 20 times as large. Elephant populations once numbered ten million, but today because of the ivory trade and an ever-decreasing habitat due to human development, the population numbers about half a million. Thanks, Christine!*

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Manuscripts submitted either on disk or electronically as attachments to an email should be submitted in Microsoft WORD. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white or color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo. Photographs may be submitted electronically as either JPEG or TIFF file attachments.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980; email is akfeditor@zk.kscoxmail.com<

**Deadline for each regular issue is the 10th of the preceding month.
Dedicated issues may have separate deadline dates and will be noted by the editor.**

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@zk.kscoxmail.com< You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@zk.kscoxmail.com<

AAZK Website Address: www.aazk.org

BFR Website: <http://bfr.aazk.org>

Scoops & Scuttlebutt



Chapters Reminded About Recharter Packets

All Chapter officers are reminded that annual Recharter Packets are mailed in January and must be returned to AAZK Administrative Offices **by 1 March 2003** in order to avoid paying the \$100 late fee. If you have questions about filling out your forms, contact Barbara Manspeaker at 1-800-242-4519 (US) or 1-800-468-1966 (Canada). You can also reach Barbara via email at aazkoffice@zk.kscoxml.com Make certain when you return your packet that you have completed all required information and have included a check for your recharter fee. Make a copy for your Chapter records. Return of these forms is part of the Association's obligation to the Internal Revenue Service under our 501(c)(3) nonprofit tax-exempt status. Failure to have forms returned by all of AAZK's chartered Chapters puts that tax-exempt status in jeopardy, so your full cooperation is greatly appreciated.

Election Nomination Reminder

The year 2003 marks an election year for the AAZK Board of Directors. There are four positions up for election. Those positions are held by Jacque Blessington, Kevin Shelton, Jan Reed-Smith and Linda King whose terms end with the 2003 Conference in Cleveland. New Board members will serve a four-year term from the close of the 2003 Conference until the conclusion of the 2007 National Conference. The deadline for making nominations is **28 February 2003**. Nomination forms may be found in the green pull-out section of the November and December 2002 issues of *AKF*. Nominees must be Professional members of AAZK in good standing and have been an AAZK member for at least one year. AAZK Nominations and Election Chair is Sheri Leavitt. For information or questions you may contact her at (409) 772-9977 or 281-534-4224.

First International Congress of Zookeeping Receives Donation

A donation of \$100.00 has been received on behalf of L.A. Zoo General Curator Michael Dee and the L.A. Zoo AAZK Chapter to help fund the participation of an international attendee to the ICZ scheduled for 2-10 October 2003 in The Netherlands. Dee donated an item to the annual fundraising activity of the LA Chapter and the Chapter matched the money that was raised. If you or your Chapter would like to help make this first-ever international zookeeping conference a success, you may send donations to AAZK, Inc., specifying that the funds are to go towards the ICZ. For further information about this conference check out their website at www.iczoo.org

EO Column Seeks Editorial Candidates

The Enrichment Options column is looking for 1-2 people who have an interest in becoming an editor for the column. Those interested should have an "above-basic" grasp of environmental enrichment and have the desire to challenge their peers with new ideas, theories and information. This is a great opportunity to challenge yourself professionally!

Please send a letter of interest no later than **1 February 2003** to: Animal Keepers' Forum, Attn: Enrichment Options Column, 3601 S.W. 29th St. Suite 133, Topeka, KS 66614-2054.

Dallas Zoo Offers 13th Wildlife Research Expedition in Mexico

The Dallas Zoo is currently accepting applications for its 13th Wildlife Research Expedition to the Los Ebanos Ranch in rural northeastern Mexico. From March 15-28, 2003, a small group of expedition participants will study the behavior and ecology of small, endangered cats, coatimundis and birds of prey.

The Dallas Zoo's Wildlife Research Expeditions offer paying volunteers a chance to work in the field on research projects or conservation programs. Five to seven individuals will be chosen to participate in the research study in Mexico. The participants, working with field biologists and local assistants, will aid in radio-tracking several species of small carnivores – including ocelots and jaguarundis – to determine their home ranges, habitat use and population densities. They will also study the cats' habitats to document kinds of vegetation preferred, space requirements and other

ecological data and will help capture and radio-collar ocelots, coatimundis and jaguarundis. Populations of small wild cat species have declined dramatically in the United States and Mexico because of human encroachment and loss of habitat. This research study will help scientists develop a conservation strategy to preserve these cats in the wild.

A second element of this Wildlife Research Expedition will be capturing raptors, or birds of prey, to assess their migratory patterns and nesting behaviors. Participants will take data on the birds, band them and release them. The study site is the privately-owned Los Ebanos Ranch on the Gulf of Mexico near Tamaulipas. The ranch includes 2,000 acres of tropical deciduous forest, 500 acres of mangrove forest, 1,500 acres of grassland and more than two miles of undeveloped beach. The ranch is also home to many species of exotic birds, including Amazon parrots.

The trip will be led by research technician Dr. Todd Bowsher of the Dallas Zoo. The on-site project leader is field biologist Arturo Caso, who has been studying endangered cats in Mexico for several years. No experience is necessary; on-site training will be provided. Conditions on the ranch are luxurious for a field study! Participants will stay in attractive lakeside bungalows with toilets, showers and electricity. The ranch cooks prepare three meals each day, and water on the ranch is purified well water.

The cost of the trip is \$1,700, including roundtrip transportation to the study site from Harlingen, TX. (Participants must get to Harlingen on their own.) Some trip expenses are tax-deductible. For more information, contact Dr. Bowsher at the Dallas Zoo, 214-671-0432, or visit Arturo Caso's website at www.angelfire.com/tx/margay/index.html.

AAZK Announces Availability of Granting Programs

The American Association of Zoo Keepers announces the availability of two granting opportunities:

The Conservation, Preservation and Restoration (CPR) Grant – This \$1,000.00 grant is designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member MUST have an active role in the conservation effort submitted for consideration. The division of this grant between two projects is at the discretion of the CPR committee. Funds are made available only after a progress report and receipts have been submitted.

The Zoo Keeper Grants in Research – Two \$1,000.00 grants are funded annually to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator MUST be a full-time keeper and a member of AAZK, Inc. in good standing.

Deadline for application submission for either grant option is 01 June 2003. Successful grant recipients will be announced at the AAZK National Conference in Fall 2003. The grant cycle runs from 01 January 2004 to 31 December 2004. For further information or an application see the AAZK Website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committees' Chair, jrsotter@iserv.net, 616-693-2680, Fax: 616-374-3263. Please specify which grant program you are interested in.

Call for Submissions for Enrichment Options Column

The 'Enrichment Options' editors need **YOU!** Our mailbox has been empty for months. In order to continue publication of this column, we need active participation from our members - motivated animal care professionals like you. Please share information with your peers on new enrichment ideas, practices, theories or experiences. Challenge yourself and others to pursue enrichment excellence! As we see the important need for informational exchange on the topic of enrichment, we do not want to discontinue this column. We hope to persevere but we will need your help. This is a desperate plea for enrichment articles. Get creative. We will accept any and all submissions in any format, formalized or rough draft. Articles can be easily submitted by snail mail to AKF, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054 or even easier via email to <akfeditor@zk.kscoxmail.com>. We look forward to hearing from you.

From the Editor

I would like to take this opportunity to thank all those who have contributed to *Animal Keepers' Forum* over the past year. Of course, thanks go out to all the authors who have submitted manuscripts on topics ranging from banding flamingos to transporting bonobos during a terrorist crisis, and a whole lot of subjects in between. We greatly appreciate their willingness to share their knowledge and experiences with us. Also a big note of thanks to the artists who have provided original drawings of exotic animals to grace the cover of *AKF* each month. Our original art covers are one of the things which makes the *Forum* unique among zoological publications.

Special thanks need to go to our regular monthly columnists: Diane Guerrero (ABC's), William K. Baker, Jr. (Reactions), Georgann Johnston (Legislative Update), Jan Roletto and Dawn Neptune (Enrichment Options), and Bruce Elkins, Kevin Shelton and Dan Conklin (The Water Column). My personal thanks to Gretchen Ziegler and Kayla Grams who have continued to serve as Associate Editors offering advice and support for this publication. Kayla deserves special kudos this year for putting together the 2002 Index which is found at the back of this issue.

Others to be thanked include keepers who have reviewed books, committee chairs who have submitted updates on their group's activities, peer reviewers who have edited submitted manuscripts and many others. While I put it all together each month, I could not do so without the contributions and efforts of many people out there. My thanks.

I hope if you have never submitted an article for *Animal Keepers' Forum*, you will consider doing so in 2003. This publication is your journal - a place to share information and experiences. Knowledge is power so let's pass it around. Let's help each other be better at our jobs and provide the best possible care for the animals in our charge.

I hope 2003 is a safe and peaceful year for you all.

---Susan D. Chan
Managing Editor *AKF*

Please Note New Email Addresses for AAZK Administrative Office/AKF

Members are asked to note that there are new email addresses for both the AAZK Administrative Offices and for *Animal Keepers' Forum*. These changes became necessary when our cable service switched from Roadrunner to their own network. Some people have still been sending to our old email addresses--this information gets blown away in cyberspace, so please note new addresses!!

The address for Barbara Manspeaker at AAZK Administrative Office is:
aazkoffice@zk.kscoxmail.com

The address for Susan Chan and *Animal Keepers' Forum* is:
akfeditor@zk.kscoxmail.com

>>Please begin using these new addresses immediately<<

AAZK Announces New Members

New Professional Members

Paige Sturm, **Elmwood Park Zoo (PA)**; Jason Keyes, **Seneca Park Zoo (NY)**; Margaret Rose-Innes and Amy Myers Eveleth, **Baltimore Zoo (MD)**; Brian McAndrews, **National Zoo (DC)**; Maggie VanCantfort, **Riverbanks Zoo & Botanical Garden (SC)**; Jenna Cole, **Miami Metrozoo (FL)**; Dawn Schmiederer, **Lion Country Safari (AL)**; Gerald Badger, **Birmingham Zoo (AL)**; Cathy Niebrzydowski, **Indianapolis Zoo (IN)**; Kathleen Fague, **St. Louis Zoo (MO)**; Joe Anna Hood, **Topeka Zoo (KS)**; Devin Bailey, **Sedgwick County Zoo (KS)**; Joshua Irwin, **Omaha's Henry Doorly Zoo (NE)**; Robert Aguilar, DVM, **Audubon Zoo (LA)**; Manda Butler, **Cameron Park Zoo (TX)**; Kristin M. Degel, **Fossil Rim Wildlife Refuge (TX)**; Joanne M. Randinitis, **Utah's Hogle Zoo (UT)**; Robyn A. Barfoot, Joshua Copus and George Kelly, **Wildlife World Zoo (AZ)**; Joshua Koenemann, Leslie Storer and Cudney Hawes, **The Living Desert (CA)**; Cassandra Ley, **Wild Things Animal Rentals, Inc. (CA)**; Violet Staat, **Happy Hollow Zoo (CA)**; and Cassey Olivares, **Wildlife Safari (OR)**.

Renewing Contributing Members

Mark Hofling
Bronx Zoo, Bronx, NY

Lane Theriac, Director
Washington Park Zoo, Michigan City, IN

Gerald W. Murrie
Zoological Society of San Diego
San Diego, CA

Renewing Institutional Members

Santa Fe Community College Teaching Zoo
Gainesville, FL
Jack Brown, Director

Frank Buck Zoo
Gainesville, TX

Tautphaus Park Zoo
Idaho Falls, ID

Discovery Boosts Orangutan Numbers Found in Wild

The Environmental News Service has reported that Nature Conservancy researchers have found nests, "indicating that between 1,000 and 2,500 orangutans are living within a 540 sq. mile (345,600-acre) area of lowland forest" on the Indonesian part of Borneo. The "remarkable discovery" boosts the number of known orangutans in the world by "about 10%." With the Orangutan Foundation International reporting that the species "faces almost certain extinction within the next five to 10 years if the current trend in illegal logging and forest loss continues" the find "represents one of the last, best chances to protect a large, healthy population of wild orangutans anywhere in the world."

To protect threatened orangutan habitat, The Nature Conservancy is facilitating the development and implementation of a locally derived model for collaborative management that will create incentives necessary to gain support from forest-dependent communities, forest industry and local and provincial government. This program not only intends to protect orangutans, but also to maintain a healthy ecosystem that will benefit other rare and endangered animals.

In support of this work, The Home Depot is giving the Conservancy \$1 million to be used over the next five years to combat illegal logging and promote sustainable timber harvesting - even though less than one percent of the company's wood supply comes from Indonesia. The Home Depot gift augments vital funding for the East Kalimantan project provided since 2001 by the U.S. Agency for International Development. Additional funding, provided by the USFWS and private donors, is paying for further orangutan surveys and other key habitat conservation efforts.

Sources: *GREENlines* Issue #1756 12-2-02
and *The Nature Conservancy* press release 11/
25/02

Coming Events

Animal Behavior Management Alliance Conference-
23-28 February 2003. Hosted by Busch Gardens Tampa Bay and the Center for Elephant Conservation. For information contact Thad Lacinak at (407) 363-2651 or email him at Thad.Lacinak@AB-AdventureParks.com

Eleventh Annual International Association Of Avian Trainers and Educators Conference - 12-15 February 2003 in Portland, OR. Hosted by the Oregon Zoo and held at the DoubleTree-Lloyd Center Hotel. For more information contact Cathi Wright (wrighte@metro.dst.or.us) or Shannon LaMonica (lamonicas@metro.dst.or.us) or call them at (503) 220-5713.

2003 Elephant Ultrasound Workshop for Wildlife Veterinarians 26-20 March 2003 and 4-8 June 2003. At Riddle's Elephant and Wildlife Sanctuary, AR, USA. For registration information please contact elephantsanctuary@alltel.net

The 2003 All Florida Herpetology Conference & Conserving Amphibians and Reptiles Through Education, a PARC National Conference - Both events will be held at the Sheraton Hotel in Gainesville, FL. Presented by the Florida Museum of Natural History with assistance from the Santa Fe Community College Teaching Zoo. Held in association with a conference on Conserving Amphibians and Reptiles Through Education, organized by Southeast Partners in Amphibian and Reptile Conservation (SE PARC).

All Florida Herpetology Conference: 5-6 April 2003
Contact: Herpetology @ (352) 392-1721; e-mail: maxn@flmnh.ufl.edu; Florida Museum of Natural History, P.O. Box 117800, Gainesville, FL 32611. **(Call for papers and keynote speakers until 7 February 2003)** Visit AFHC website: <http://www.flmnh.ufl.edu/natsei/herpetology/afhc.htm>

Conserving Amphibians and Reptiles Through Education (PARC Conference): 6-8 April 2003
Contact: George L. Heinrich, Heinrich Ecological Services, 1213 Alhambra Way S., St. Petersburg, FL 33705-4620; phone: (727) 865-6255; e-mail: highpinc3@aol.com; Visit PARC website: www.parcplace.org

Tenth Annual International School for Elephant Management - 25 April - 8 May 2003 - Riddle's Elephant and Wildlife Sanctuary, AR, USA. For persons having worked full-time with elephants for at least one year. For registration information please contact elephantsanctuary@alltel.net

Third Annual Rhino Keeper Workshop - 15-18 May 2003 in Denver, CO. Hosted by the Rocky MountainAAZK Chapter and the Denver Zoo. Will include speakers and a day at the zoo. For further information contact Rocky Mountain AAZK Chapter President Dave Johnson at (303) 376-4900 or email

Workshop Chair Chris Bobko at rhinoqueen@yahoo.com


Association of Avian Veterinarians 24th Annual Conference & Expo - 25-29 August 2003 in Pittsburgh, PA. To be held at Pittsburgh's Westin Hotel and the David L. Lawrence Convention Center. Theme is "Take Flight in Pittsburgh". Program will include lectures and Master Classes. If you wish to receive more information on presenting call the AAV Office at (303) 756-8380, ext. 13. Deadline is 25 October 2002. Fax# is ((303) 759-8861.

2003 AZAD Annual Conference - 9-14 September 2003. Hosted by Omaha's Henry Doorly Zoo, Omaha, NE. Interested parties may contact Judy Sorensen at 8040 Park Dr., Ralston, NE 68127-3744 or by email at howard@infinity.com

Elephant Managers Association Conference - October 2-5, 2003 - Hosted by Knoxville Zoological Gardens, Knoxville, TN. For more information, call (865)-637-5331, ext. 359 or e-mail bhargis@knoxvillezoo.org

First International Conference on Zookeeping in 2003 - The Netherlands - Will be held between 2-10 October at Birdpark Avifauna. For further information please visit: www.iczoo.org

Sixth International Conference on Environmental Enrichment - 2-7 November 2003 in Johannesburg Zoo, South Africa. The provisional conference attendance fee is US\$250, but this will be confirmed and reduced based on price and currency fluctuations towards the end of 2002. South Africa is an exciting destination that boasts a number of world class zoos. Further information can be obtained from our website at www.jhbzoo.org.za Please feel free to contact Mathew van Lierop who will be coordinating the conference at +27 11 646 2000 ext 233 or at mathew@jhbzoo.org.za



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AAZK Award Nominations Are Now Being Accepted for 2003

The AAZK Awards Committee is accepting nominations for the **Jean M. Hromadka Excellence in Zookeeping Award (EZ)**, **The Certificate of Merit for Zoo Keeper Education (CMZE)**, and **The Certificate of Excellence in Exhibit Renovation (CEER)** to be presented at the 2003 AAZK Conference in Cleveland, OH. The deadline for all award nominations is **1 June 2003**. Information concerning the qualifications, nomination procedure, selection procedure and an explanation of the awards may be obtained by contacting Janet McCoy, Chair, AAZK Awards Committee, Oregon Zoo, 4001 S.W. Canyon Rd., Portland, OR 97221.

Jean M. Hromadka AAZK Excellence in Zookeeping (EZ) Award

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Jean M. Hromadka Excellence in Zookeeping Award presented by the AAZK Awards Committee. The purpose of the award is to recognize achievement and determination of an individual in the zookeeping field and in fostering professionalism. Zookeeping is a science combining zoology, biology, animal management, behavioral observation and daily record keeping on the collection of species in their care. This is essential knowledge for maintaining a species effectively in captivity. The excellent zookeeper must excel in one or more of these areas, but not be lacking in any of them.

The Excellence in Zookeeping Award was founded by John Siegel, 1974-1975 CHAIR, in 1974. The original name of the award was the Marlin Perkins Award, named after the famed zoologist who started his career as a zookeeper. The name was changed in 1978 to the EZ award. In 1990, the name was changed to the Jean M. Hromadka Excellence in Zookeeping Award in memory of her outstanding contributions to the furtherance of AAZK through committee work and as President. The award is presented at the annual AAZK National Conference.

Qualifications:

1. The nominee **must** be a full-time animal keeper, employed in any North American zoological institution, aquarium or related facility for at least five years.
2. The nominee **must** have been employed at least two years on permanent status at the same zoo, aquarium or related facility.
3. The nominee **must** be nominated by his or her peers who have also been employed at that same zoo, aquarium or related facility. Supporting nominations may be submitted by management personnel from the same institution.

Nomination Procedure:

1. List name, position, institution's name, address, phone and Director, years of service in the field and the recommendation of peers or colleagues.
2. List and **document** commitment to the profession, outstanding achievements, practical/outstanding application of knowledge and experience, and keeper skills, etc. **Verification** of these facts must be signed by the zoo director, curator, or immediate supervisor of the individual being nominated.
3. List any extra activities outside of zoo, aquarium or related facility work: working with conservation groups, youth, wildlife officials, etc.
4. Deadline for nominations is **JUNE 1st** of each year.

Selection Procedure:

The Awards Committee, consisting of five keepers, will independently review each nominee.

Certificate of Merit for Zookeeper Education (CMZE)

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Certificate of Merit for Zookeeper Education (CMZE) presented by the AAZK Awards Committee. The purpose of the award is to recognize individuals, institutions and organizations in the zoological community most actively promoting educational programs for zookeepers. Examples of such support are: reimbursements for formal education, keeper training courses and staff seminars.

The CMZE was founded by Jeff Roberts, 1976-1978 CHAIR, in 1978, to compliment the work of the AAZK Education Committee that had been formed at that time. The award is presented at the annual AAZK National Conference.

Qualifications:

1. Any staff individual, institution or organization from a North American zoo, aquarium or related facility is eligible.
2. The keeper training program must have been in existence for at least one year.

Nomination Procedure:

1. If you feel that your institution, organization or a staff individual merits such an award, please submit a letter of nomination which mentions specifically the educational programs that are offered.
2. Claims made should be backed up with documentation for the committee to review.
3. List the institution or organization's name, address, phone and Director.
4. The deadline for nominations is JUNE 1st of each year.

Selection Procedure: The Awards Committee, consisting of five keepers, will independently review each nominee.

Certificate of Excellence in Exhibit Design Renovation (CEER)

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Certificate of Excellence in Exhibit Renovation (CEER) presented by the AAZK Awards Committee. The purpose of the award is to recognize institutions or organizations in the zoological community for the design and renovation of existing animal facilities which involved active keeper participation in the process.

The CEER was established by Janet McCoy, 1990 CHAIR. Bill Whittaker proposed the award to the AAZK Board of Directors. The award is presented at the annual AAZK National Conference.

Qualifications:

1. Any North American zoological institution or organization is eligible.
2. The renovated exhibit must be in full operation for at least two years.
3. The exhibit must be nominated by a keeper at that same institution or organization. Supporting nominations may be submitted by management personnel from the same institution.

Nomination Procedure:

1. List institution or organization's name, address, phone and Director.
2. **Document** local awards or commendations for exhibit, drawings, 8 X 10 color photos - no slides (2 before and 8 after), and renovated exhibit type: single or multispecies, and size.
3. **Document** keeper participation in the design and why the existing facility was renovated.
4. **Document** interface with other zoo divisions; and maintenance of exhibit after completion.
5. The deadline for nominations is **JUNE 1st** of each year.

NOTE: Materials will not be returned.

Selection Procedure: The Awards Committee, consisting of five keepers, will independently review each nominee.

Nominee Evaluation:

The evaluation of each nomination is broken down into four categories based on the general guidelines outlined for the award. The four categories are: Keeper Involvement, Exhibit Functionality, Exhibit Management and Visitor Point of View/ Other Information. Items the committee is looking for are the following:

A. KEEPER INVOLVEMENT:

- a) degree of keeper involvement with conceptual development of exhibit
- b) degree of keeper involvement with facilitation of completion of exhibit, (fund raising, promotion, assist with construction)
- c) contribution to educational experience (graphics, conservation message)
- d) originality - is it something new and different, or has it been tried before

B. EXHIBIT FUNCTIONALITY:

- a) versatility - indoor/outdoor, four seasons, protection from elements
- b) accommodates and encourages animal's natural behavior - climbing structures, land area, height, water
- c) hard (gunite, concrete) vs soft (grass, dirt) environments - as to animal needs
- d) sight lines valuable to animal as well as visitor - important to some animals (polar bear, chimps)
- e) physical and visual barriers for animal's use, animal safety
- f) flexible entrance/exits (hoofstock - more than one entrance)
- g) ability to exhibit natural social grouping
- h) breeding success

C. EXHIBIT MANAGEMENT:

- a) how management of exhibit interfaces with other zoo divisions (grounds, maintenance - simple repair, paint)
- b) keeper serviceability, overall maintenance of exhibit and surroundings
- c) adequate drains and properly located
- d) quality and versatility of holding areas - ease of separating animals, moving, breeding, sick

- e) keeper sight lines - can you see animal when they come into holding or when shifting them between areas, keeper safety
- f) ease of providing time change items (browse, logs, feed, novel objects)
- g) environmental control (ease of seasonal adjustments - ventilation, heat)

D. VISITOR POINT OF VIEW/OTHER INFORMATION:

- a) educational experience (conservation message)
- b) immediate and sustained viewer interest
- c) sight lines - not see doors, drains, fencing - does it have esthetics
- d) bonus point - local awards, commendation, "wow" factor
- e) include anything else pertinent to the renovated exhibit that you think is important

The character of the awards includes either a plaque or certificate, letter of notification to the institution's director and national recognition by professional journals. Such journals include: the American Zoo and Aquarium Association (AZA) and the Canadian Association of Zoological Parks and Aquarium (CAZA) Newsletters, Animal Keepers' Forum (AAZK), Awards, Honors and Prizes: Volume I; United States and Canada. The latter is published by Gale Research Company based in Wheaton, MD and found in medium to large sized libraries across the U.S. and Canada.

Award Nominations should be submitted to:

Janet McCoy, Awards Chair

The Oregon Zoo, 4001 SW Canyon Road, Portland, OR 97221

Next month we will include information on making nominations for the Lifetime Achievement Award, the Meritorious Achievement Award, and the Environmental Enrichment (EE) Award

Deadline for Nominations is 1 June 2003

*****Information Please*****

Does anyone have experience with the paint in older exhibits containing **LEAD** and, therefore, harming the enclosure inhabitants?

Also, I am looking for any possible information that links **LEAD** poisoning to epilepsy. This study will focus on mammals, specifically, *Ursus americanus*.

Please send any information to: Jennifer Verstraete, Head Keeper, Trailside Museums and Zoo, Bear Mountain State Park, Route 9W, Bear Mountain, NY 10911; phone: (914) 786-2701, ext. 278.

ANIMAL BEHAVIOR 101: Keeping the Front Lines Informed

*By Paul Martin, Zoo Keeper
Fort Worth Zoo, Fort Worth, TX*

Abstract

The *Jungle Journal*, a newsletter produced by the Fort Worth Zoo's staff services manager (Sondra Bowden), provides operation employees with upcoming events, job openings, promotions, and animal trivia. Not unlike zoo keepers, operation employees who work the concessions, attractions, gift shops and maintain the cleanliness of the zoo are most often encountered first by the zoo visitor with questions about the zoo's animals. The majority of these inquiries by the visitor go unanswered. How to get more animal information out to operation employees presented a challenge. This Fort Worth Zoo zoo keeper accepted the challenge. July 2000 the first article titled "A Better Fit" appeared in the *Jungle Journal*. Subsequent animal behavior articles appeared in the section entitled "Animal Behavior 101". "Lobo", "Almost Human". "Snoozzzzzing", "Puzzling as They May Be" were a few articles submitted for the reader's perusal. To determine how well received these articles were, a survey was conducted. The results were better than expected.

Introduction

In the past papers have been presented indicating the need for better public education and how it has affected the role of the zoo keeper. And, yet, overlooked are the zoo operation's employees, better known as the "front lines". Those employees are confronted with a variety of inquiries: directions to various places (restrooms, phones, restaurants, animal exhibits, etc.), attraction prices and animal information. Animal information questions normally go unanswered while other non-animal inquiries are answered enthusiastically. "Branching Out" - the 2002 American Association of Zoo Keepers' Conference's theme - from another perspective could be cooperation/ teamwork.

Animal Behavior 101 is the result of a challenge presented by Sondra Bowden, staff services manager for the Fort Worth Zoo (FWZ), during a keeper training class in the spring of 2000. The challenge: how to get animal information out to the "front line" employees. Like most zoos, the FWZ has graphics available at each exhibit, updated memos posted in each zoo department informing of current animal births, acquisitions, exhibit openings and closings and so forth. Accepting the challenge, I discussed the process of submitting articles and article content with Bob Wiese (Director of Animal Collections) and Sondra. "A Better Fit" appeared in the July 2000 issue of the *Jungle Journal*. It served as a prelude to future articles to come.

Articles appearing in the *Jungle Journal* had to be brief, provide information in both an educational and entertaining manner, and be correct in regards to the animal being discussed. Behavioral information about specific animals came from such sources as information received from the Mexican Gray Wolf keeper training workshop, encyclopedia of mammals/birds, behavior guide to African animals and other animal behavior resources. It's important to ensure facts being presented are not misconstrued by the reader. The use of animal pictures/diagrams as well as challenging the reader to attempt to detect behaviors described may/can result in an enthusiastic response to a visitor's inquiry. See the attached article samples and decide for yourself.

To determine how well the articles are being received, a survey was conducted (see questionnaire). It was important to determine first if the employees actually read the *Jungle Journal* and secondly, if any read the section entitled: Animal Behavior 101. The 90 employees completing the survey represented the following zoo departments: Revenue Operations, Merchandise, Admissions, Food Service, Food Service Warehouse, Janitorial, Operations and Attractions. Of those responding 88% responded to actually reading the *Jungle Journal* and 57% looked forward to reading the section entitled "Animal Behavior 101". Expecting a lower percentage, this author was taken aback by the results. Further, it's truly interesting to see how the comments reflected these employees' appreciation for the animal information presented. Comments such as "very educational", "knowledge is a definite benefit" and "helps with answering visitor's inquiries" were the most common responses.

A Better Fit

Ever wonder why an animal acts a certain way? Learning about an animal's behavior will assist in understanding how these animals perceive their world. An animal's behavior includes any activity from courting and mating, birthing and teaching the young, communicating and interacting with each other from day to day - in fact, from the beginning to the end of their life. If performed successfully, the animal will retain its ability for survival. The behaviors of wild animals show the sophisticated ways in which they are adapting to their environments. Each environment presents different challenges that its inhabitants must be prepared to meet as they follow the natural rhythms of their life cycles - avoiding predators, awakening from hibernation, giving birth deep in a forest, migrating with the change of seasons. As time passes and evolution proceeds, animals and their environment achieve a 'better fit'.

Paul Martin

Summer Drawings!

Each month this summer, we will do a random drawing. Amanda Davis won two tickets to Hurricane Harbor in May's drawing! Congratulations!



News of the Weird

A guy who must have been in desperate need of beer decided to throw a cinderblock through a liquor store window, grab some booze, and run. So he lifted the cinderblock and heaved it over his head at the window. The cinderblock bounced back, off the Plexiglas-made window, hit the would-be thief on the head, and knocked him unconscious.

The whole event was caught on videotape.

ENRICHMENT WISHLIST

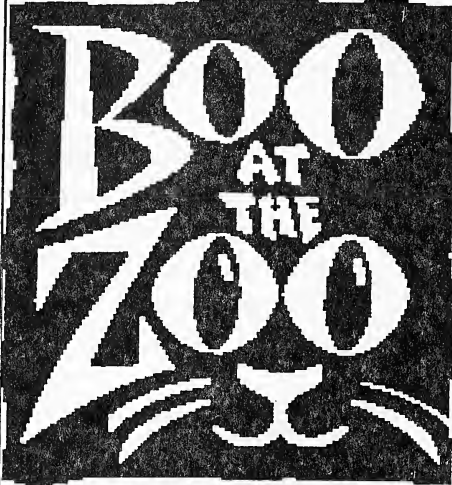
- blankets, sheets and towels
- 1/2" drill bits
- crescent wrenches
- circular saw
- wire cutters
- needle nose pliers
- paper towel rolls
- plastic buckets with lids
- post hole digger
- wheel barrel
- old clothes

Cans for Creatures Remember to recycle those cans!

- Recycle bins are located:
- ◆ Near the time clock (blue bin)
 - ◆ Kitchen in Education Building (blue bin)
 - ◆ Revenue Operations Office (can crusher)
 - ◆ Engineering shop (2, 10 gallon containers)
 - ◆ Break room (blue bin)



All moneys received from recycled cans go to the Enrichment program.



boo at the zoo

Boo at the Zoo

Dates: Saturday October 20th - Sunday
October 28th

Times: 6 pm - 8 pm

Prices: \$9 for adults, \$4 for toddlers 2 and
under

Advanced ticket sales begin October 1st
Guests may call 817-759-7373 daily from 10
am - 4 pm to purchase advanced tickets.

Special Nights:

Sponsor nights: Monday, October 22nd and
Tuesday, October 23rd

Employee nights: Monday, October 22nd and
Tuesday, October 23rd

Member nights: Members receive \$2 discount
every night of the event

Boo at the Zoo will feature live shows by
Legends of Texas, live animal presentations, a
craft area, carnival area, an "un-haunted"
mine shack, magicians, strolling
entertainment and much more!

ANIMAL BEHAVIOR 101

Puzzling As They May Be

Ever wondered what that lion, tiger or cougar might be doing??? A closer look at your typical domestic cat may provide the insight needed for understanding their behavior. Behaviors such as why cats rub on each other or the humans they reside with. Why a cat will chase its prey (i.e. a mouse) and catch it to only play with it until letting it go and then start the cycle all over again. And what posture is normal or purely defensive.

As we humans greet one another, so do cats. This is demonstrated when one cat approaches another, often moaning softly, rubs heads and then slides with their tails raised and draped over their partner. One can probably picture a pet cat doing this to their owner; but, mainly against their owner's leg while standing.

Did you know a cat's urge to stalk, to capture, to kill all stand alone and separate from the urge to eat. This explains why a cat will chase, capture, play with and release a prey. And although all cats stalk, capture and kill prey in the same basic manner as the domestic cat, individual techniques are perfected through practice.

Utilizing the below diagrams will aid in determining a cat's facial expressions and body postures. On your next trip to the zoo, remember there is more than one aspect to a cat's behavior. With this in mind, maybe you can delve into the cat's psyche and predict the obvious...

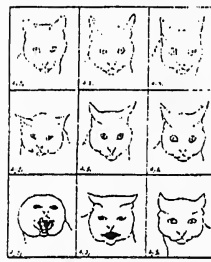


FIG. 11.1. Offensive and defensive facial expressions arranged as in the fig. 11.1. A, B as a less extreme degree. Here A₁ denotes a relaxed expression, A₂ as offensive mood unprovoked by fear, A₃ as purely defensive threat, and A₄ as equally mixed offensive and defensive moods. (From Leyhausen 1979.)

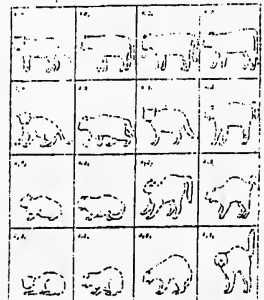


FIG. 11.2. Feline offensive and defensive body postures: A, B₁ denotes a normal, relaxed posture, A, B₂ a posture of offense unmodified by fear, A₃ a purely defensive posture. Other illustrations show postures assumed when offensive and defensive emotions are both present, in varying degrees, culminating in A₄ when a cat is strongly and equally motivated by offensive and defensive tendencies. (From Leyhausen 1979.)

Paul Martin

ANIMAL BEHAVIOR 101

LCBO

The Mexican gray wolf (*Canis lupus baileyi*) or "Lobo", is the rarest, southernmost, and most genetically distinct subspecies of the North American gray wolf. The average Mexican gray wolf weighs 60 - 80 lbs., stands 28 - 32 inches at the shoulder, is 4 1/2 - 5 1/2 feet in length and has a richly colored coat of buff, gray, rust and black. They breed from late January through early March and have a gestation period of 63 days with an average litter size of 4 - 5 pups.

Wolves have complex social behaviors, living in family groups called "packs", the structure of which is maintained by communication through vocalization, body postures and scent marking.

Wolves play an important role in the ecosystem that is not filled by other predators. Like all gray wolves, Mexican gray wolves evolved as a predator of large hoofed mammals. Their tightly organized group structure enables them to work cooperatively to bring down prey larger than themselves. Unlike their northern counterparts with a prey base of moose and caribou, the Mexican gray wolf has a smaller prey base (deer, elk, javelina, rabbits and other small mammals). The Mexican gray wolf's range has various habitats with the mountain woodlands being the most favorable for its combination of cover, water and available prey.

To know the wolf is to understand wolf behavior.

The next time you are visiting the wolf exhibit at Thundering Plains, use the behaviors shown in the figures at right and see what you can learn about the wolf.

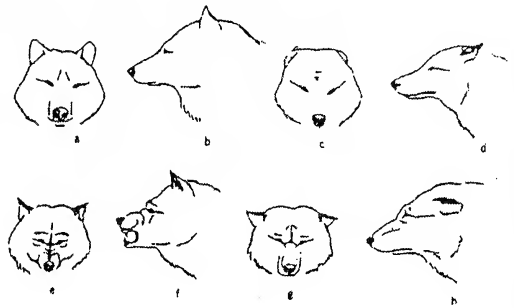


FIGURE 12. Facial expressions of the wolf: a and b, normal expressions of a high ranking animal; c and d, anxiety; e and f, threat; g and h, suspicion. (From Schenkel, 1947)

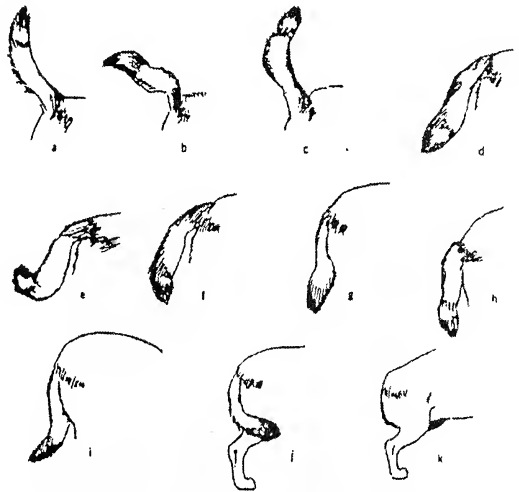


FIGURE 13. Expressive positions of the wolf's tail: (a) self confidence in social intercourse; (b) certain threat; (c) imposing attitude (with sideways brushing); (d) normal attitude (situation entirely without social pressure); (e) a not-entirely-certain threat; (f) normal attitude (similar to "d") particularly common during eating and observing; (g) depressed mood; (h) between threat and defense; (i) actively casting oneself down (with sideways brushing); (k) strong restraint. (From Schenkel, 1947)

If there is a particular zoo animal behavior that you are interested in learning about, please submit to the Ask-it-Basket.

Paul Martin

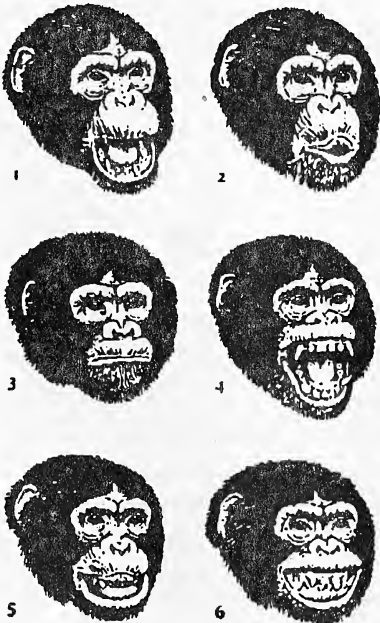
Almost Human

The common chimpanzee is a forest frugivore which is equally at home in the trees or on the ground. It sleeps and does most of its feeding in trees, but travels overland and also forages to some extent on the ground. Unlike gorillas and monkeys who live in cohesive groups, the chimpanzee lives in communities numbering from 15 to 120 animals that share a common home range but rarely or never assemble in a single troop. Because of the fluid nature of chimpanzee society and the longevity and marked individuality of this animal, valid generalizations about its social organization only gradually emerged during 2 decades of field studies.

For example an average day in the life of a chimpanzee may go like this:

Spending 4 hours a day eating fruit, 1-2 hours eating young leaves as well as to include but not limited to flowers, pith, bark, seeds, nuts, bush babies, insects (i.e. termites, ants, bees, caterpillars, insect larva), 2 hours resting around midday and before dark builds a nest to sleep in.

Posture, locomotion, facial expressions, visual -- visual/ tactile signals and vocal communication are all facets of the chimpanzee's behavior. Knowing what's happening will aid in better understanding what's happening within a chimpanzee group. Will you be able to determine what the chimpanzees are doing and why? Maybe or maybe not; but, with the following examples below you may have an honest chance. Good luck to you all on your next visit to the World of Primates!



Facial expression is more varied in higher primates than other animals and in the chimpanzee particularly.

- (1) Play face: relaxed, open mouth, upper teeth covered.
- (2) Pout: used in begging for food.
- (3) Display face: used in attack or otherwise to show aggression: facial hairs erected.
- (4) Full open grin: intense fear or other excitement.
- (5) Horizontal pout: shows submission, e.g. whimpering after being attacked.
- (6) Fear grin: during approach to or from a higher-ranking chimpanzee.

Paul Martin

Conclusion

This Fort Worth Zoo zoo keeper accepted a challenge to assist staff services' employees gain another method of obtaining animal information. Hoping at least one employee amid the "front lines" would be intrigued enough to retain behavioral facts presented, observe the animal discussed and, then, when the opportunity presents itself, enthusiastically express to the zoo visitor the events unfolding before them. Only ONE would make the goal a success. The articles appearing in the *Jungle Journal* since July 2000 under the section aptly named Animal Behavior 101, simplified an animal's behavior (explained stuff), urged employees to see for themselves (detect behaviors covered) and talk to animal staff. The survey conducted demonstrated the articles ARE an overwhelming success. Taking on the unknown, branching out results in a win-win situation for the zoo, its employees, the visitors and the animals.

Questionnaire

1. What department do you work in?

2. Do you read the *Jungle Journal*? Yes No

3. What are your favorite sections of the *Jungle Journal*? Circle all that apply.

Don't Forget

Animal Tracks

Ask-It Basket

What's "Gnu" in the Zoo

Customer Service Corner

Animal Behavior 101

Puzzle

Employee Spotlight

4. Do you read the Animal Behavior 101 articles? Yes No

If so, do you have a favorite article? Yes No

If so, which one(s) _____

5. Do you find the Animal Behavior 101 articles beneficial?

If so, please explain _____

6. Would you like to see more Animal Behavior 101 articles? Yes No

If so, what animals would you like to see featured in this section?

7. Is there any other information you would like included in the *Jungle Journal*? Yes No

If so, what information? _____



Book Review

Starting Your Career as a Marine Mammal Trainer (Second Edition)

By Terry Samansky

DolphinTrainer.com

1370 Trancas Street #402, Napa, CA 94558

ISBN 0971981471

144 pages, \$16.95

Review by Diana Guerrero, animal behavior consultant and publisher of ARKANIMALS.COM Big Bear Lake, CA

As an animal career consultant and author of the on-line *Unusual Animal Career Series*, I am always on the lookout for career texts for those interested in working with animals. My site lists many career books and this will definitely be another I add to the queue.

This book serves a specific niche for those enamored with the thought of working with marine mammals. It presents a good overview of marine mammals, what the job entails and answers many of the questions most people ask.

The text also includes suggestions as to what type of education is needed, how to plan and research, and the proper etiquette to use in contacting people in the industry. It even touches on applications, resumés and interviewing. Finally, the book also includes a resource directory of a variety of facilities and organizations involved with marine mammals.

Whether you are just starting your quest for a career or are someone besieged by questions regarding this type of career, I highly recommend this book. The only drawback is the price of this paperback.

Hand-Rearing Wild and Domestic Mammals

By Laurie J. Gage, DVM July 2002

Iowa State Press, 2121 State Ave., Ames, IA 50014-8300

ISBN#0-8138-2683-7

304pp Hardback \$59.99

Review by Sara Riger, Lead Keeper Mammals Nashville Zoo, Nashville, TN

Hand-Rearing Wild and Domestic Mammals is a collection of contributions from more than 34 authors as a guide to the raising of exotic and domestic mammals. Separated in two parts, the book covers first common domestic mammals such as rabbits, puppies, kittens and goats and a more extensive twenty-five chapter second part on exotics encompassing Wildlife, Zoo and Marine Mammals such as Lemurs, Felids, Walrus, Seals, Great Apes, Elephants, Insectivorous Bats, Macropods and other species. Each chapter in itself then covers topics such as Natural History, Protocols, Formulas, Record Keeping, Nursing Techniques, Criteria for Intervention, Frequency of Feeding, Medical Problems, Weaning and other areas that are species specific.

The book as a whole is very thorough with each of the species it treats. The editor notes that there is no "right way" to successfully raise any of the species presented here. There are obviously many different routines followed in the zoo and rehabilitation field but this book sets out to outline a general description of methods, which are known to have been successful, and many of the

contributors are experts with extensive experience raising each of the species they cover. There are many resources for products and references found at the end of each chapter as well.

It seems as though many of the chapters such as exotic felids or macropods could have been turned into small books themselves with the large amount of work that has been done with some of these species over the years, but in the general context of the book and within the space that is provided, this book gives a good general overview. This text became immediately helpful when four Bornean Bearded Piglets ended up in our nursery for rearing the week the book arrived!

The only critique of the book as a complete text would be that it does not encompass many of the other exotic zoo mammals that have been successfully hand-reared, small to medium sized primates such as Spider, Squirrel, and Saki Monkey, Dourocouli, Asian Prosimians and other mammals such as Porcupines, Red Pandas, and Otter species. If there is ever a need to raise any of the mammals covered in this book, then I would recommend it as a very good starting point with all the information you may need to get your newborns headed in the right direction.

Three Types of Data Transfer Forms Available from AAZK

Just a reminder that three different types of data transfer forms are available to requesting institutions from AAZK at no charge. These forms are designed to be used whenever an animal is shipped from one facility to another so that important information on that animal can be passed on to the receiving keeper and veterinary staffs.

The following forms are available by contacting Barbara Manspeaker at 1-800-242-4519 (U.S.) and 1-800-468-1966 (Canada), or by emailing your request to aazkoffice@zk.kscoxmail.com

- Animal Data Transfer Form (ADTForm) - includes information on diet, reproductive history, general medical history/physical conditions, and enclosure/maintenance data on animal(s) being shipped.
- Enrichment Data Transfer Form (EDTForm) - includes information on behavioral history, enrichment currently used and how implemented (food, exhibit, artificial, etc.), safety concerns for animal(s) being shipped.
- Operant Conditioning Data Transfer Form (OCDTForm) - includes general background information, training specifications, training schedule, behaviors trained and methods used for animal(s) being shipped.

These forms are provided free of charge as a professional courtesy of AAZK, Inc. We encourage all zoos, aquaria and other animal care facilities to adopt the use of these forms when shipping animals. We extend our thanks to the following institutions for assisting in the printing expenses for these forms: Columbus Zoo (ADTForm), Arizona-Sonora Desert Museum (EDTForm), and Disney's Animal Kingdom (OCDTForm).

MOVING?

Please let us know when you change your address! It now costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@zk.kscoxmail.com to report your new address.

AAZK Book Sale

Sale price is 20% off the Suggested Price
Previous books may still be available, with some price increases

<u>Sugg. \$</u>	<u>Sale \$</u>	<u>Item Title/ Description</u>
\$15.00	\$12.00	<u>Women of the Four Winds The Adventures of Four of America's First Women Explorers</u> – Elizabeth Fagg Olds. Read the exciting stories of four wild women who were true pioneers. 318 pgs. Paperback
\$20.95	\$16.75	<u>A Natural History of Amphibians</u> – Robert C. Stebbins & Nathan W. Cohen. This textbook style volume focuses on the natural history of all orders of amphibians worldwide and emphasizes their interaction with the environment. 304 pgs. Paperback
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\$29.95	\$23.96	<u>Wild Cats of the World</u> – David Alderton. This book discusses the evolution, distribution and current status of wild cats, covering many of the lesser known species of Europe. Includes a fulchecklist of species and maps. 192 pgs. Color photos. Hardcover
\$75.00	\$60.00	<u>A Dictionary of Birds</u> – Bruce Campbell & Elizabeth Lack, Editors. 270 contributors provide coverage of modern ornithology in this landmark work. Includes migration, parental care, fossil birds, and descriptions of all bird families. 704 pgs. Hardcover
\$19.95	\$15.96	<u>Weird Nature. An Astonishing Exploration of Nature's Strangest Behavior</u> – John Downer. The ingenuity of all kinds of animals is celebrated including flying dragons, the "conga" lines of spiny lobsters, and the Wallace tree frog whose large webbed hands and feet allow it to glide as far forward as it drops vertically. 168 pgs. Color photos. Paperback
\$27.50	\$22.00	<u>Minding Animals Awareness, Emotions and Heart</u> – Marc Bekoff. An exhilarating tour of emotional and mental world of animals, where we meet creatures who do amazing things and whose lives are filled with mysteries. 256 pgs. Hardcover
\$21.95	\$17.56	<u>National Geographic Field Guide to the Birds of North America</u> 4 th Edition – Mel Baughman & Barbara Brownell, Editors. Continues to be the most sought-after, authoritative, and easiest-to-access field guide. Features all species known to breed in North America, more than 800 in all. Paperback
	\$12.95	<u>Connecticut's Beardsley Zoo: The First Eighty Years</u> - Robin Demattia. Celebrate the Zoo's 80th anniversary highlighting the staff, volunteers, companies, city officials and animals that helped make the Zoo what it is today. 60 color and b&w photos, 64pgs. Paperback

To Order: List the items you are ordering along with your name and complete mailing address. Include a shipping fee of \$3.00 for the first item and \$2.00 for each additional item. Checks payable to "AAZK Book" (**US FUNDS ONLY – NO CASH OR COD's please**). Sorry we cannot process credit card orders. **Call or fax for shipping fees when ordering from outside the continental United States before sending any money. We will work to find the best form of shipment.**

Mail requests to: AAZK Beardsley Chapter, Attn. Linda Tomas, 1875 Noble Ave., Bridgeport, CT 06610-1600. Phone: 203-394-6563 Fax: 203-394-6566 Email: beardsleyz@aol.com

Bowling for Rhinos 2003

It's time to start planning for Bowling for Rhinos 2003. Please send in the information ASAP. Remember, if you want to be eligible to win the two-week trip to Kenya, all monies must be sent to me no later than **1 September 2003** and you **must** be a National AAZK member in good standing. If bowling isn't your thing, try Rock 'n' for Rhinos, Rummage for Rhinos, Run for Rhinos, or even Chapter donations are accepted! Every penny counts toward saving rhinos worldwide!

Contact person: _____

Zoo/Organization: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone:
Day - _____ Night - _____

Fax: _____ E-mail: _____

Will you be hosting a Bowling for Rhinos event this year?

YES

NO

When? _____

Would you like sample letters/flyers/posters? YES NO

Information and artwork may be downloaded from <http://bfr.aazk.org><

A multimedia CD which includes a BFR slide presentation along with the script, the 10-minute Lewa promo CD with David Attenboro as the narrator, and a 20-minute video on Ujung Kulon and Indonesia, along with a screen saver slide show is available free to any participating AAZK Chapter or institution that is sponsoring a BFR event in 2003. Contact Patty at address info on next page.

How many sponsor forms do you need (same ones as last year)?

Quantity desired: _____

Additional Comments:

Please Note: There is a \$25.00 registration fee required from each organization holding a BFR event (waived for first timers).



**Please mail to: Patty Pearthree c/o BFR
318 Montibello Drive
Cary, NC 27513-2479
(919) 678-0449
e-mail: ppear3@aazk.org
BFR Website: <http://bfr.aazk.org>**

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Once 2002 Proceedings copies are sold out, photocopies of individual papers will be available for \$3.00 each by contacting the AAZK Administrative Offices.

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Note: Those presenters who correctly submitted their manuscripts on time for inclusion in the 2002 Conference Proceedings will receive one gratis copy. All others wishing a copy must place an order.

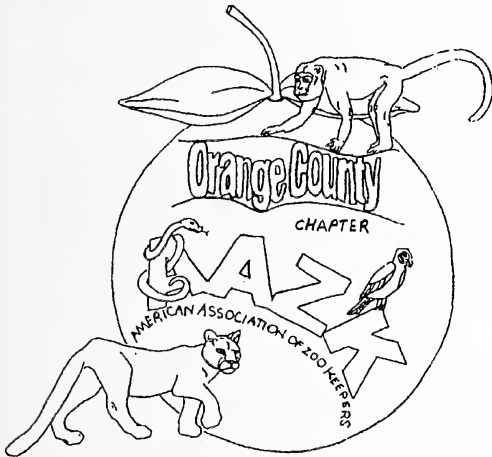
The following papers are included in the Proceedings: It's Not Just the Quills That Are Sharp: The talents, skills and abilities of the South American Crested Porcupine ~ Zoo Collections of State Listed Endangered and Threatened Species ~ Use of Operant Conditioning to Prepare Tigers for an Emergency Recall ~ Comparison of Activity Levels and Methods of Introduction Between a Juvenile and Adult Pair of North American River Otters ~ Development of a Browse Notebook for Use by Mammal Keepers ~ Breeding the Silvery-Cheeked Hornbill ~ Training of a Black Rhino Calf from Birth Through One Year of Age at Disney's Animal Kingdom ~ Training a Pileated Woodpecker for Animal Shows ~ Opening the Arctic Ring of Life Exhibit at the Detroit Zoo ~ Behavioral Effects of Alternative Feeding Methods for Asian Small-Clawed Otters ~ Against all Odds: A successful reintroduction of a male dwarf mongoose into the River's Edge pack at the St. Louis Zoo ~ Let's Get Together: The Challenge of Introducing Angolan Colobus Monkeys ~ Hoofstock Management on the West Savannah Habitat of Disney's Animal Kingdom ~ Animal Behavior Management - It's Not Just for Keepers: The Role of the Zoo Veterinarian in an Animal Behavior Management Program ~ Wildlands of Hope, Oh, The Places You'll Go ~ Share the Vision: Respect the Differences: Collaboration and Networking Among AAZK, AZH and AZA ~ Defining a Standard of Excellence - Enrichment at the Programmatic Level ~ Helping Ursula: Incorporating Compatible Alternative Therapies to Support Traditional Western Veterinary Medicine ~ Gestational Monitoring of Eastern Black Rhinoceros Through Ultrasonography, Serum and Urine Hormone Quantification, Fetal Assessments and Girth Measurements ~ Keeping Every Cog and Wheel: Ecoregional Conservation Across the Globe ~ Horticultural Therapy in a Zoo Setting ~ The Trade in Bear Parts: Where have we been and where are we going? ~ The International Conservation Trail - Extending the Methodology: The Role of L.A. Zoo's GPS/GIS/Database and Mapping System in Real World Conservation Initiatives ~ Sustainable Zoo Horticulture Operations - The North Carolina Zoo Model ~ Thailand Clouded Leopard and Fishing Cat Breeding Program ~ Free Trip to Africa! ~ The International Congress of Zookeeping: Working Together to Improve Animal Care and Welfare in Zoological Settings ~ The Blanding's Turtle Recovery Program ~ Out of the Zoo and Into the Field ~ National Animal Care Update - USDA ~ 2002 Bowling for Rhinos - Making a Difference ~ Butterfly Experience ~ **Workshops/Panel Discussions/RAP Sessions:** Plants for Landscape Exhibits ~ "Just Browsing" - How to Preserve Browse for Lean Times ~ Solutions for a Smaller Planet - Direct Conservation Action and Stewardship for Saving Nature ~ Lewa Safari: A Zoo Keeper's Dream Come True ~ ABMC: Training for Specific Behaviors ~ ABMC: Training 101 - Principles of Animal Training ~ Australasian RAP Session ~ Enrichment Workshop ~ Privatization of Zoos ~ **Posters:** Digitally Enhanced Animal Management ~ Improving Cheetah Breeding Success in Captivity Using Cryopreserved Sperm and Laproscopic Intrauterine Insemination ~ Natural Behaviors of the Common Marmosets in Relation to Exhibit Space ~ Utah Chapter AAZK - Past, Present and Future ~ All Right! Phase 1 of Operant Conditioning for a Grevy's Zebra Stallion ~ Basic Giraffe Training at the Virginia Zoo ~ Raising Bigfoot: Hand-Rearing African Jacanas at DAK ~ Hope for the Hope Zoo, Kingston, Jamaica ~ Design of a Horticulture Exhibit Without a Horticulture Department ~ Nigerian Dwarf Goat Caesarean **and much, much more!**

Orange County Chapter AAZK

The newly elected 2003 officers for this Chapter are:

President.....Jennifer Gonsman
Vice President.....Jared Walker
Treasurer.....Kristina Smith
Secretary.....Julia Walz
Liaison.....Kelly Hendrickson

Thanks to past officers, President Michelle Claud and Secretary Jenny Leichty, for their endless commitment to the Chapter. Our Chapter's success definitely came from your hard work and dedication!



The Orange County Chapter has elected to support two more outstanding conservation organizations: the California Wolf Center and Orange County Bird of Prey Center. Both rescue organizations have made many great strides in reintroducing animals back into the wild. The California Wolf Center is currently overcoming the effects of a devastating fire and our sponsorship will help to aid in their relief efforts. Our sponsorship with the Orange County Bird of Prey Center provides for our adoption of 30 birds and their release into the wild. We are extremely excited for our two new partnerships and their invaluable work.

---Kelly Herndrickson, Liaison

Chapter News Notes

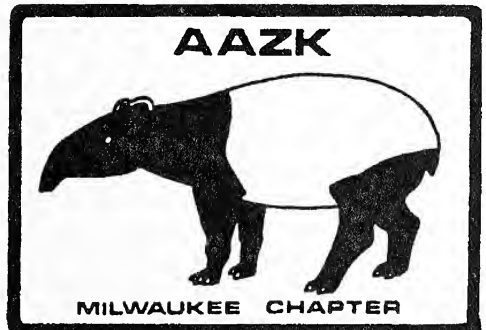
Milwaukee AAZK Chapter

We recently completed another run of two of our annual fundraisers. The first one was another successful Spaghetti Dinner, again cooked and served by our AAZK members. This year we managed to raise about \$1050.00 which will be donated towards the possible purchase of a coin wishing well. This wishing well will be placed near exhibits into which the public usually tosses coins. Hopefully, this will encourage the public to toss their coins in a safer place, as the animals have yet to grasp the concept of money.

In October we again sold carmel apples during our Halloween Boo at the Zoo event. We managed to raise about \$430.00. This money will go to our Milwaukee AAZK Chapter funding resources.

The Milwaukee County Zoo recently hosted the annual Association of Zoo Veterinary Technicians (AZVT) Conference and the American Association of Zoo Veterinarians (AAZV) Conference. The Milwaukee AAZK Chapter helped by providing the hospitality suites.

--Earl Conteh-Morgan, Liaison





REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

*By William K. Baker, Jr., Curator
Little Rock Zoo, Little Rock, AR*

Question

From time to time you have mentioned emergency supplies for response and repairs after a crisis, could you expand on that?

Comments

Historically, the approach that I have worked from is that crisis equipment can be broken down into two classes, Dedicated Crisis Equipment, (DCE) that is utilized in the event of an actual crisis and Emergency Support Equipment, (ESE) which is utilized after the fact.

- I. Crisis Management Equipment
 1. Dedicated Crisis Equipment (DCE)
 - A. crisis response equipment
 - a. firearms and dart rifle
 - b. flashlights and binoculars
 - c. first aid and trauma kits
 - d. animal capture and restraint
 - B. rescue equipment
 - a. ladders
 - b. tool kit
 - c. entry tools
 - d. cutting torch
 2. Emergency Support Equipment (ESE)
 - A. vital services equipment
 - a. generators and pumps
 - b. lights, heaters, and fans
 - c. animal transport crates
 - d. propane heat units and tanks
 - B. fabrication equipment
 - a. tool kits
 - b. netting and shade cloth
 - c. containment material
 - d. construction material

For the purposes of this discussion, I'll focus on Emergency Support Equipment. Effectively, this is the equipment that will allow a facility to resume operations or provide some sense of normalcy after the crisis has occurred.

Vital services equipment is the equipment that will actually restore or maintain the utilities, which most facilities rely upon for water, electrical, and gas. Water storage units or towers can replace broken water lines. Back-up or stand-by generators can replace disrupted electrical grids, which in turn provides lighting, heaters, fans, hot-wires, and pump units. Propane can effectively replace broken gas lines which provides heat, hot water, and in some cases power for generators.

Fabrication equipment is best described as building materials specific to providing temporary shelter, temporary containment, or utilized to repair existing structures. This can literally run the gamut from tools to actually perform the repairs all the way up to and including building materials. Examples would include plywood (multiple thickness), screws, nails, staples, tar paper, roofing materials, treated posts, 1x1" mesh, 2x4" mesh (6-gauge), solar powered hot-wire systems, 1x1" netting (rolled), steel cable and tension bars, eye hooks, bagged concrete, shade cloth, plastic zip ties, portable cattle panels and caging units, water and feed buckets, sheet metal, angle iron, welding rods and a portable welder. Actually, this list could go on forever as every facility is a little different from the next and the needs will shift based on exhibit design and diversity of the animal collection.

I also try to place with this material one completely stocked portable tool kit, one portable generator, one portable pump, one cutting torch unit with full bottles on a dolly, plus a power cutter and grinder. The associated safety equipment such as gloves, glasses, and hearing protection are usually factored in as well. The hardest part in my experience is protecting this windfall of materials and equipment from the "scrounger", the person who never remembers to submit a budget request, but is the first to strip your supplies over time and thinks of it as their private stash. Then when the facility is struck with a crisis, there is little or nothing left.

My answer to this problem is to purchase a "Conex-style" storage container, such as those used by air and sea freight companies, steel in nature, and equipped with lockable hardware they provide a secure and dry place to store virtually anything. I recommend using a high quality lock with extremely limited key access and partially burying the unit in the ground with concrete retaining walls to prevent potential damage in severe weather, (tornado or hurricane). Once complete this storage unit can supply a small repair crew with most anything they could need or want. Final point, I do recommend installing battery-powered lights inside the unit as they can get quite dark.

Next Month: We are currently using pump shotguns set up for hunting purposes for potential crisis situations, what can we do to upgrade to make them more suitable for a crisis?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)

2002 BOWLING FOR RHINOS - Making A Difference

By Patty Pearthree

National Coordinator, AAZK's Bowling For Rhinos

Introduction

The American Association of Zoo Keepers (AAZK) "Bowling For Rhinos" (BFR) fundraiser has raised over **\$1,700,000** since 1990 entirely through volunteer efforts. It is the hard work and dedication of these volunteers that will make the difference in wildlife conservation efforts. Everyone should be proud to have taken part in such a successful program.

One hundred percent of all donated funds go directly to three rhino conservation organizations. The first is Lewa Wildlife Conservancy (LWC) in Kenya, which has grown to 55,000 acres protected with a two meter tall electric fence that is home to 32 black and 33 white rhino (8/23/02). In 1994, AAZK expanded its funding efforts to include Ujung Kulon National Park in Java, Indonesia which is home to the last 47 Javan rhinos on earth (with a few recently discovered in Viet Nam). AAZK expanded its funding efforts once again in 1997 to include Bukit Barisan Selatan National Park (BBS) in Sumatra, Indonesia where one of the largest populations of Sumatran rhinos live. There is now an Indonesian Rhino Conservation Program that includes all parks with rhino populations and BFR has become part of this program. All these efforts also protect unique ecosystems enabling the conservation of hundreds of endangered plants and animals.

2001 BFR Results

Forty-two Chapters or institutions turned in money in 2001 for a **record total of \$192,789.14!** A total of \$105,000 was sent to Lewa Wildlife Conservancy with \$4,000 being retained for 2002 expenses. An extra \$5,000 donation was given for specific use at LWC this year. \$43,894.57 was sent to Ujung Kulon National Park and \$43,894.57 was sent to BBS in 2002 from the 2001 event.

2002 BFR to Date

Forty Chapters or institutions held an event in 2002. As of 9 September, 29 Chapters or institutions had turned in money for a total of \$130,780.83. I estimate the total to be \$150,000 when all money is turned in for 2002.

Making a Difference

In the 1980's it was predicted that rhinos and elephant would be extinct by the year 2000 due to poaching. The black rhino population numbered about 100,000 in 1960 but remains around 2,600 today. The number of elephants in Africa is half what it was 40 years ago. It is true that the black rhino numbers have plummeted. However, just the fact that these numbers are not zero is only because of dedicated conservationists who had to literally resort to armed camps to protect the remaining numbers of these species. The southern white rhino made a comeback from 20 animals in 1913 to 10,400 today.

There are now about 550,000 elephants in Africa. The largest herd, estimated at 60,000, moves among five countries. Indonesia's rhino population plummeted 50% in a matter of five years. Only after the onset of the very intensive and specially trained rhino patrol units has the population held steady. The International Rhino Foundation, US Fish & Wildlife Tiger and Rhino Conservation Fund, World Wildlife Fund, and AAZK are the main contributors to the Rhino Patrol Unit (RPU) program.

Without conservation organizations like AAZK, these animals would surely be extinct today. I hope you will rejoice in knowing these magnificent animals that have walked on earth for millions of years are still thriving. It is in our hands to continue this work to protect these animals and have their populations return to reasonable sizes. We **have** made a difference and will continue to do so.

BFR 2002 Top Individual Money Raisers

Thanks to everyone for the outstanding effort this year! Here are the top 10 individual fund raisers:

Name	Total Raised	AAZK Chapter	Comments
Victoria Zahn	\$16,607.32	OKC	Wins LWC Safari
Bethany Lutz	\$ 9,200.00	Utah	Wins LWC Safari
Peggy Huscher	\$ 3,645.23	Rolling Hills	
Patty Pearthree	\$ 2,270.00	North Carolina	
Alex Vasquez	\$ 1,377.13	Dallas	
Craig Miller	\$ 1,000.00	Craig Miller	
Ed Curtis	\$ 1,000.00	Detroit	
Linda Hicks	\$ 830.00	Reid Park	
Eileen Jones	\$ 593.00	Staten Island	
Nancy Gunter	\$ 557.00	Portland	

BFR 2002 Top Money Raising Chapters

Thanks to everyone again! Here are the top three fund raising organizations:

AAZK Chapter or Organization	Zoo Affiliation or Comments	Raised Funds
Oklahoma City		\$ 16,607.32
Detroit		\$ 14,281.25
Puget Sound		\$ 11,005.00

Portland AAZK has raised the most since BFR started with \$143,095.31!

It is extremely important to have continued participation from everyone if we are going to continue in our success. It doesn't matter how little or how much money is raised by your event. All events and funds raised are important! Public awareness of the plight of the rhino is of utmost importance so whatever it takes to get the word out is incredibly helpful. Remember, it takes about five consecutive years for a fundraiser to take hold where people start to count on it, so it's important to hold an event each year! It's also fun!

Bowling For Rhinos is not only about saving rhinos. We save rhino habitat so we are saving everything from orchids to elephants! Lewa has the second largest population of elephant in Kenya and 25% of the world's Grevy zebra population.

Use of Bowling For Rhinos Funds

One hundred percent of all funds raised are sent directly to three rhino conservation projects, conserving four species of rhino, their habitats, and hundreds of other endangered plants and animals. BFR helps preserve the black and white rhino in Africa and the Javan and Sumatran Rhino in Indonesia. The first \$100,000 raised each year goes to the Lewa Wildlife Conservancy with the remainder split between Ujung Kulon National Park and Bukit Barisan Selatan National Park.

Lewa Wildlife Conservancy, Isiolo, Kenya

The money AAZK raised with BFR was used to complete the Ngare Sergoi rhino sanctuary fence, fence in the Ngare Ndare Forest Preserve, purchase a plane and a lorry (truck used to transport animals), fence off the two remaining boundaries and increase security. The old existing fence between the rhino sanctuary and the Ngare Ndare forest area was then removed. This created a 55,000-acre haven where everything from orchids to elephants could flourish. This allows the animals to migrate between the rhino sanctuary and the lush forest area - which is extremely important during times of drought. There are 145,000 acres under common wildlife policy but only 55,000

acres are enclosed by the fence with an area open at the north end to allow for the migration of elephant in and out of the sanctuary. Starting in 1994, BFR funds were used to help provide the operating costs of this successful rhino sanctuary. From 1990 through 2001, \$1,284,455.72 has been sent to LWC.

The annual operating cost of the sanctuary is over \$850,000 with 170 guards protecting the area. Anna Merz, AAZK's BFR funds, and private donations combine together to fund the operating costs. Operating costs include funding the security staff for the sanctuary and the wildlife, maintenance for the fence, vehicles and plane, and research staff to provide information such as carrying capacity determinations and fire burning regimes. By supplying operating costs, AAZK makes it easier for Lewa to solicit private donations to provide funding for special projects. Future plans include relocation of reticulated giraffe, common zebra, and other wildlife to restock depleted neighboring wildlife areas, and increasing the number of security patrols and vehicles. Fuzz Dyer, head of security for LWC since 1983 has moved back to his family ranch, Borona, which borders LWC. He plans to implement the same aims and principles of LWC at Borona, with the ultimate objective being to remove the fence between the two properties allowing for free movement of wildlife. If the plan works, it will create the largest conservation area made up of private and community owned land in Kenya and would create 300,000 acres for wildlife.

The population of black rhinos started with an initial translocation of 15 rhinos into the sanctuary in 1984 when it was only 5,000 acres. The sex ratio was biased towards males. Consequently, a number of the pioneer adult males were lost in the initial years due to fighting. To improve the sex ratio, seven males have been moved to other sanctuaries. By 1994, when the sanctuary was expanded to 55,000 acres, 10 births had been recorded. Twenty births were recorded between 1993 and April 2002. Peak calving occurred after the 1997 El Nino rains. One hand-raised orphaned male was recently moved to the neighboring community conservation area of Il Ngwesi. There are now 32 black rhinos. The survival rate of calves has improved to 92% since 1998.

For additional information see the Lewa website at <http://www.lewa.org>.

Javan and Sumatran Rhinos

The two kinds of rhinoceros in southeast Asia are the most endangered of the five surviving rhino species. There are fewer than 100 Javan rhino - about 50 in Ujung Kulon and another 20 in Cat Loc Vietnam. The Sumatran rhino is considered the most critically endangered species of rhino by the IUCN/SSC Asian Rhino Specialist Group (AsRSG). Fewer than 300 are estimated to survive worldwide. Although not as rare as the Javan rhino, poaching pressure is more intense on the Sumatran rhino whose population declined at least 50% from 1990-1995. BFR supports two National Parks in Indonesia which protect the Javan and Sumatran Rhinos. If it had not been for the support from IRF, US Fish and Wildlife Service Tiger and Rhino Conservation Fund, WWF and AAZK over the past 10 years, the Sumatran and Javan rhinos would surely have perished. We must now look to the future to maintain and increase the populations to respectable sizes.

Ujung Kulon National Park, Java, Indonesia

Ujung Kulon is a 300 square mile National Park that is home to some of the rarest plants and animals on earth. It is one of the last remaining lowland rainforests in the world with hundreds of endangered plants and animals including the Javan rhino. The annual running cost of Ujung Kulon is a roughly \$100,000.

Since 1996, \$179,860.43 has been sent to Ujung Kulon from AAZK's BFR events. These funds were used to purchase such items as a well, pump and water tower at the Karangranjang guard post, the completion of a new patrol boat, camera units for photo trapping census of the Javan rhino, installation and maintenance of the cameras, training staff for trapping census and preparation of photo inventory of field data, 32 hand-held radios, radar unit for night patrol boat and training of a

a "Rhino Patrol Unit" (RPU). These are very intensive, specially trained anti-poaching units of five men. These RPUS are the only proven method to effectively conserve these tropical forest rhinos.

The 1999-2001 funds were used for the operational costs for camera checking for census work on the Javan rhino at \$21,000/year and to purchase a much needed high powered patrol boat in collaboration with Minnesota Conservation Officers and the US Fish and Wildlife Service. There are currently three RPUs operating in Ujung Kulon. Future support will continue the census work over the next couple years, train and support the continued use of RPUs to protect wildlife, and pay for maintenance of existing buildings and equipment.

The photo-trapping census work in Ujung Kulon is now 90% complete. Thirty-seven Javan rhinos have been individually identified. They expect the total to be 45-52 animals. No poaching has occurred in Ujung Kulon over the last 18 months.

Bukit Barisan Selatan National Park, Sumatra, Indonesia

Half of the monies over \$100,000 raised each year from BFR will go to Bukit Barisan Selatan National Park (BBSNP) which is believed to have one of the largest populations of Sumatran rhinos. This is a 3,568 square km protected area on the southwest side of the island of Sumatra. Asian elephant, tiger, clouded leopard, Malayan sun bear, Indian wild dog, and a substantial number of the estimated 300 Sumatran rhinos live within this park. Since 1998, \$110,010.43 has been sent to Bukit Barisan from BFR funds.

For the most part, all necessary equipment and training for RPUs have been provided by the Global Environment Facility (GEF), US Fish and Wildlife Rhino and Tiger Conservation Fund (USFWS RTCF), and International Rhino Foundation / IUCN Asian Rhino Specialist Group (IRF/ AsRSG). Adequate patrol shelters already exist in the Park for the patrol work of RPUs. What is needed at BBSNP for rhino conservation is operational funds for the RPUs. The operational cost for each RPU is currently \$17,000/year. BFR money will be used in this way for the next few years.

There are currently six RPU's (of four-man teams) operating in Bukit Barisan and two additional Tiger Patrol Units (TPU). The poaching pressure in Indonesia is more intense than ever. Two rhinos were poached this summer in BBS. It is believed inside information was leaked to poachers by a Wildlife Conservation Society survey team. Information on RPU routes and patrol times was given to poachers. It is now high priority to ensure no further leaks occur. More vehicles for the RPUs are currently the top priority item. The RPUs are vital to the survival of Indonesia's rhinos and other wildlife.

There is now an Indonesian Rhino Conservation program (IRCP) that includes all parks with rhino populations. This program will allow funding to be used on top priority needs in top priority locations to conserve wildlife. BFR is now part of this program. This allows unused funding in any given year to go through IRCP to be reallocated to these top priority locations. This will allow BFR to expand funding to include such places as Way Kambas (Eastern Sumatra) that has a large population of Sumatran rhinos. The unexpended funds from this year at Ujung Kulon will now be used to establish two more anti-poaching teams in Way Kambas and assist with the poaching situation in Bukit Barisan.

For additional information on rhino conservation, see <http://www.rhinos-irf.org/> or <http://www.5tigers.org/>.

BFR Fund-raising Guidelines

- Events should be held between March 1- August 1st.
- I send out fliers in *AKF* requesting info on your upcoming event. This helps me know how many new sponsor sheets you need and when your event date is in case people in your area call me for info. (see insert this issue of *AKF*)

• If interested in participating, send for an information packet (or see <http://bfr.aazk.org>) and let me know the number of sponsor sheets to send.

*If you have never held an event, see “how to hold an event” on the web site.

• There is a **\$25 administrative fee** to participate which should be made out to “AAZK, Inc.” and mailed to me prior to obtaining sponsor forms. This fee covers indirect costs incurred by AAZK, Inc. due to BFR (phone, postage, faxes, bank fees). Administrative fees are waived for the first year a Chapter participates.

• Call me if the information packet does not answer your questions (919-678-0449)

* There is now a multimedia BFR CD for any participating Chapter or institution that requests a copy. This CD includes a BFR slide show with script, a Lewa promo video and an Ujung Kulon video.

• **To win the trip to Africa, all money must be sent in to me by September 1st!**

• **Please try to have all money sent within 30 days of your event.**

I write this workshop paper in September so if you want to be included in these totals, send in the money.

• If a Chapter does not wish to send their checks certified mail, the following is the only way to insure that your check is not cashed by anyone other than AAZK, Inc.! **Please write “For Deposit Only” on the back signature area of all checks. This will ensure only AAZK can deposit it instead of just anyone who may intercept it!**

• Please make out one check payable to “**AAZK, Inc.-Bowling For Rhinos**”, include a copy of your financial form & a copy of **only** the high money raiser’s sponsor sheets and mail to:

Patty Peartiree c/o Bowling For Rhinos

318 Montibello Dr. Cary, NC 27513

(919) 678-0449 ppear3@aazk.org web site <http://bfr.aazk.org>

*Contact your local “Rhino Linings” Company (truck liners) to see if they would be willing to help your event. Items donated in the past were blow up rhinos, give-away items and a truck liner for raffle. You can contact Patty for the local contact nearest you.

*It is very important to remember that we advertise 100% of all donations go towards conservation. All donations from donors must be submitted to AAZK Bowling For Rhinos for this to be true. This means that your organization must cover any expenses for this event. This can be done by charging a fee for bowlers, through silent auctions, door prize raffles, your local organizations funds, etc.

*Anyone can join the Bowl-a-thon, so **don’t limit yourselves to only zoo people. However, be sure it is clear that only National AAZK members in good standing are allowed to win the trip.** If you have a potential winner, ask them to join AAZK.

***No matter how small the Chapter is or how few bowlers you have, every dollar helps so don’t be afraid to give “Bowling For Rhinos” a shot!**

I would also like to add a special Thank You:

Mary Ann McNamara retired from the Potter Park after working 25 years. She donated the money raised from her retirement party (\$141) to Bowling For Rhinos. Thank you, Mary!

I would like to welcome some newcomers to Bowling For Rhinos: Chaffee Zoo raised \$1,265.00; Lion Country Safari raised \$593.00; and Staten Island Zoo raised \$3,043.50.

Whether your Chapter’s event is large or small, the important thing is that we are doing it! We are getting the message out, staying in people’s mind’s year after year about the plight of the rhino and other endangered wildlife. So remember that when you are asked to be the coordinator for your event and help do the work, you really can make the difference!

American Association of Zoo Keepers, Inc.

Administrative Office, 3601 SW 29th St., Ste. 133, Topeka, KS 66614-2054

The Following Items are Available from the AAZK Administrative Office on a PREPAID basis:

PINS AND CHARMS: Enameled three-quarter inch pins and charms with the official AAZK logo are done in the same colors as the AAZK patch. The charms are suitable for necklaces or French-hook earrings. Price per pin or charm is \$5.00.

PATCHES: AAZK Patches are available for \$5.00 each.

CONFERENCE PROCEEDINGS: The following issues available at the prices listed.

1980 Montgomery National Conference	\$2.00
1983 Philadelphia National Conference	\$2.00
1987 Milwaukee National Conference	\$3.50
1989 Syracuse National Conference.....	\$5.00
1991 Toledo National Conference.....	\$8.00
80, 83, 87, 89, 91 National Conference Proceedings Package	\$15.00
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2001 ____ CONFERENCE PACKAGE ____

() Check enclosed – Make Payable to AAZK

() Please charge my credit card as listed below

Mastercard or Visa Number _____ - _____ - _____ - _____ Expiration Date _____

Name as it appears on Credit Card _____

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Signature _____

Prices given include postage for Domestic Orders Only. Canadian and Overseas orders should check with Administrative Office via email at aazkoffice@zk.kscoxmail.com for shipping costs.

Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



CITIES Moves on Whales and Ivory

Parties to the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), meeting for their 12th Conference in Santiago, Chile, on 4-15 November, rejected a proposal by Japan to allow limited trade in certain populations of whales. While they approved a one-off sale of ivory stockpiles in Botswana, Namibia and South Africa, they turned down two ivory-related proposals from Zimbabwe and Zambia. Parties also rejected a draft resolution put forward by the CITES Secretariat on economic incentives and trade policy.

On whales and elephants...

Delegates voted against a proposal by Japan to transfer most northern hemisphere populations of Minke whale and the western North Pacific population of Bryde's whale from Appendix I (no trade allowed except in exceptional circumstances) to Appendix II (limited trade under strict controls). These and other whale species are currently protected under the International Whaling Commission, which established a moratorium on commercial whaling in 1986. At the IWC, whaling nations such as Iceland, Norway and Japan have been pushing hard for a lifting of the moratorium to allow for limited whaling activities. Both Norway and Iceland hold a reservation on the moratorium, which allows them to legally resume whaling.

Countries adopted proposals by Botswana, Namibia and South Africa to allow one-off sale of ivory stockpiles, collected from elephants that died of natural causes or as a result of government regulated problem animal control. Botswana and Namibia had previously withdrawn their request to institute annual sales of ivory in addition to the one-off sales. Any future one-off sales will be supervised through a rigorous control system and will not occur before May 2004 to allow for the gathering of baseline data on population and poaching levels. The CITES Standing Committees can suspend trade if they find the importing or exporting countries to be in non-compliance with their regulations.

However, parties rejected Zimbabwe's request for a one-off sale. Kenya and the US, in particular, had raised concerns regarding Zimbabwe's current ability to adequately enforce laws, manage wildlife, and control the domestic ivory trade. Parties also rejected Zambia's proposal to down-list its elephant population from Appendix I to II. The US and Kenya again opposed the proposal, with the US arguing that Zambia's elephant population did not meet the criteria for down-listing. India and Kenya had been the strongest opponents to re-opening ivory trade due to concerns that it would revive the ivory industry and lead to widespread poaching.

Many conservation groups greeted the decision to allow limited sales for the three African countries with anger, describing it as a "death warrant" for elephants. "Poachers, smugglers, and profiteers are not interested in the fine print that outlines the conditions attached to future ivory sales, nor in the 18-months delay before any sale can take place", said Will Travers, president of the Born Free Foundation and chairman of the Species Survival Network. The groups strongly criticised the US for supporting the ivory trade for the first time in CITES history. "We condemn the United States for today's disappointing departure from its past position on this issue," said Teresa Telecky of the Wildlife Trade Programme for the Humane Society of the US.

Countries reject resolution on economic incentives and trade policy

Parties rejected a draft resolution on economic incentives and trade policy put forward by the CITES Secretariat (see BRIDGES Trade BioRes, 24 October 2002), which encouraged the use of social

and economic incentives at the domestic level to achieve the objectives of the Convention and the removal of perverse incentives. The draft resolution furthermore called on Parties to avoid the use of stricter domestic measures (SDMs, i.e. domestic legislation with trade controls stricter than those required by CITES) and to favor instead the adoption of incentive measures at the international level. The reference to avoiding SDMs was rejected by India, the European Union and Brazil, arguing that the Convention did allow for the use of such measures. Many regard SDMs as the most likely potential point of conflict between CITES and World Trade Organization rules, believing that they open the door for unilateral, arbitrary and restrictive trade measures that are allowed under CITES (see BRIDGES Vol.2 No.2).

Nevertheless, the CITES Secretariat will conduct further work on the use of economic incentives, following the adoption of a draft decision which sets out future activities for the Secretariat to further explore this issue.

The meeting of parties to the U.N. Convention on International Trade of Endangered Species concluded with delegates voting to protect a number of imperiled species, including basking and whale sharks, sea horses, big-leaf mahogany, sea turtles, and Black Sea bottlenose dolphins reports MSNBC. In addition, a report on measures countries are taking to “clamp down” on the cruelly inhumane trade in bear bile and parts was ordered. Australia dropped its proposal to list the Patagonian toothfish after “realizing it did not have enough votes.”

All decisions by the CITES Parties were submitted for adoption by the final plenary on 15 November. There are 160 nations participating as signatories in CITES. Signatories of the CITES treaty, agreed to in 1973, meet every two years to regulate commerce in endangered wildlife. *Source: Documents of the meeting are available at <http://www.cites.org/eng/cop/index.shtml>.*

Lead Problem, Other Concerns Prompt New Condor Management Plan

In the latest set back to the California condor recovery program, routine tests on nine of the 17 wild condors living in Los Padres N.F. revealed that eight of the birds had been exposed to lead says the *San Jose Mercury*. One condor had such high blood levels of lead that it is being confined until it recovers, the first time since the 1997 reintroduction began that such high levels have been detected. Conservationists suspect the lead poisoning is tied to ingestion of lead bullets in the recent hunting season, renewing “concerns about what some see as the largest threat to California’s \$35 million program to bring condors back from the brink of extinction.”

After the recent deaths of the first three California condor chicks born in the wild in over a decade, the USFWS reintroduction program is turning to a “new, more hands-on management style” to protect the birds reports the *L.A. Times*. One of the dead chicks had “eaten everything from bottle caps to metal screws,” and the new management will feature 24-hour video camera monitoring, safe food placed near nesting sites, and quick intervention where necessary. Critics of the new management policy say the program’s focus on releasing captive bred birds “into the wild simply to boost numbers” is flawed because the “birds often cannot survive on their own, making the goal of an independent wild population as far off as ever.” *Source: GREENlines Issue #1751 11-21-02; GREENlines Issue# 1757 12-03-02*

Sea Lion Numbers Up

In the “first good news we’ve had in 20-plus years,” the summer survey of Steller sea lions in the Gulf of Alaska and Aleutian Islands showed a modest 5% population increase says the *Anchorage Daily News*. Scientists from the ESA recovery team cautioned that several more years of data are needed before “we can indeed say there’s been a switch in the population trend” and that numbers are still 5% below 1998 levels and 34% below 1991, with sea lions in the far western Aleutians down “24% since 2000 and 75% since 1991.” The Steller sea lion population has “crashed more than 80% in the past 25 years.” *Source: GREENlines Issue #1748 11-18-02*

Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 10th of each month to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive their AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our Fax is (785) 273-1980; e-mail: akfeditor@zk.kscoxmail.com< Listing may be sent as MS Word attachment. We are no longer located at the Topeka Zoo, so please note new address to avoid delays in processing.

Assistant Curator of Birds ...The International Crane Foundation, located in Baraboo, WI, has an immediate opening for an Assistant Curator of Birds. Applicants should have a BS (MS preferred) degree in biology, conservation or related field or science. Five (5) years of relevant experience in care and breeding of birds, including endangered species, with at least two (2) years in a supervisory position is preferred. Requires good understanding of bird behavior and biology, strong knowledge of varied husbandry techniques (artificial insemination, incubation, chick rearing), with basic knowledge of research and data analysis. Ability to communicate effectively in English, both written and oral, with the ability to present complex scientific information to a lay audience or to train foreign scientists, some with limited English, required. The Assistant Curator must carry out responsibilities with minimal supervision, work well as part of a team, handle multiple responsibilities and manage significant details. Job involves physical activity including restraining large, strong and aggressive birds and lifting up to 50 lbs. Must work outdoors in all types of weather. Computer skills, including word processing, use of spreadsheets and E-mail, are required. Knowledge of ARKS data management is desirable. Strong supervisory skills are required. This is a full-time position with a competitive salary and benefits. Offices and other buildings are smoke-free. To apply, submit a resumé, cover letter, names of at least three (3) references, and salary history to Susan Finn, International Crane Foundation, P. O. Box 447, Baraboo, WI 53913-0447 USA or email to sfinn@savingcranes.org, fax: 608-356-9465. AA/EOE.

Mammal Keeper...The Nashville Zoo at Grassmere is currently looking to fill an immediate opening in the Mammal Department. Applicants should have one (1) year of experience in the zoo field including animal husbandry, exhibit repair and modification, training and enrichment programs. Other requirements include a willingness to interact with the public in a positive manner and assist in the development of research and training programs. A degree in the biological sciences is preferred but not required. **Position closes when filled.** All other applications for the mammal department will be maintained for future expected openings in the early spring. Please send a cover letter and resumé to: Sara Riger, Nashville Zoo, 3777 Nolensville Road, Nashville, TN 37211 or fax to 615-333-0728 or contact 615-833-1534 x53 for more information.

Head Hoofed Stock Keeper . . . degreed, experienced with giraffe, zebra, rhino, african antelope and other mammals. Must be able to take charge of maneuvering these animals for various reasons. Daily duties include care and husbandry, public speaking, good communication skills with visitors and other staff members. Animals are in free-contact environments. Lifting up to 100 lbs may be required. Weekends and holiday work is necessary, according to shift. Salary depends on experience. Full benefits. Please mail or fax resume to: Dean Harrison, Out of Africa Wildlife Park, 9736 N. Ft. McDowell Rd., Scottsdale, AZ 85264. Phone (480)-837-6683, Fax (480)-837-7379. Visit our website at www.outofafricapark.com. **Position open until filled.**

Aviculture Interns... for the Hawaii Endangered Bird Conservation Program at the Keauhou Bird Conservation Center (KBCC) on the Big Island of Hawaii and the Maui Bird Conservation Center (MBCC) on the island of Maui. Daily tasks include husbandry duties such as: diet preparation, aviary and facility maintenance, behavioral observations of breeding birds, grounds keeping, predator control. Applicant must be able to live with several roommates in a remote area and should show enthusiasm for work with captive endangered Hawaiian birds. Applicant must have a valid driver's license and health insurance. Internships last for a 3-6 month period. Interns receive \$20/day stipend plus housing. For more information on internships at **KBCC**, please send a resumé, cover letter, and the names and contacts of three (3) references to: Tracey Goltz, P.O. Box 39, Volcano, HI 96785 or fax: 808-985-7034. **OR**, for more information on internships at **MBCC**, please send this information to: Mary Schwartz, 2375 Olinda Road, Makawao, HI 96768 or fax: 808-572-3574.

Avian Internship... Become familiar with daily activities involving our colony of African penguins, exotic birds, and reptile collection. Duties include food preparation, exhibit maintenance, and creation of enrichment devices. Candidates should be comfortable with public speaking and have course work in biology/psychology. Must be able to work outdoors and lift 50 pounds. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid. Interested candidates should submit a cover letter and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Kyla Fox, One Riverside Drive, Camden, NJ 08103.

Marine Mammal Internship... Learn daily activities involving animal care and training with our Seal Team. Duties include food preparation, exhibit cleaning, creating enrichment devices and observing training. Candidates should be comfortable with public speaking, have course work in biology/psychology, prior animal experience, be able to work outdoors, and lift 50lbs. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid. Interested candidates should submit a cover letter and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Nicole Begley, One Riverside Drive, Camden, NJ 08103.

Internship Opportunities - National Aquarium in Baltimore

To apply for any of the following internship positions go online at www.aqua.org/education/internships to obtain an application form. A complete application includes contact information, answers to brief statements listed, and a copy of college transcript. Complete applications should be sent to: National Aquarium at Baltimore-Internships, Pier 3/501 East Pratt St., Baltimore, MD 21202. Application Deadline: ongoing - 1 April 2003 for Summer and Fall 2003 terms; 1 November 2003 for January and Spring terms of 2004. For further information contact the National Aquarium in Baltimore's Internship coordinator at intern@aqua.org or call (410) 576-3888.

Aquarist Intern

The selected candidate will assist the Aquarium aquarist staff with daily care of the Aquarium's invertebrates and fish. *Essential Functions:* Assist with tank maintenance and cleaning; Prepare daily diets and perform daily feedings; Assist in the maintenance of back-up areas; Conduct precise record keeping; Perform special projects to be determined by the aquarist staff. *Requirements:* College juniors or seniors enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field. Must complete a minimum of 120 hours of work within the selected term, preferably during the week. Must be able to lift 50 lbs, climb up a 6' ladder, and be able to squeeze across a 15' long x 12" wide platform. Interns must receive college credit for their internship. Internships are unpaid.

Aviculture Intern

The selected candidate will assist the Aquarium aviculture staff with daily husbandry activities in the South American Rainforest exhibit. *Essential Functions:* Assist with and perform diet preparation and distribution; Conduct animal observations; Assist in the cleaning of holding areas, kitchen, and food prep areas; Provide enrichment to the aviculture collection; Perform special projects at be determined by the aviculture staff. *Requirements:* Interest in working with birds. Enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science, or a related field. Must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid.

Herpetology Intern

Duties: Tend the "Hidden Life" exhibits (large wall terrariums where small, neotropical lizards, frogs, snakes and invertebrates are on public display); Mist and clean the off-exhibit colony of small arboreal lizards; Mist, clean and otherwise help tend the large, off-exhibit collection of neotropical frogs; Prepare diets for and feed the on and off-exhibit iguanas and tortoises; Tend the locust (live food) colony, orb-weaving spiders and colonies of non-venomous exotic arthropods

(wood and hissing roaches, millipedes and walking sticks); Assist in the maintenance of the live food cultures (fruit flies, springtails, crickets, rats, mice); Conduct and record animal observations; Perform special projects as determined by the herpetology staff. **Requirements:** Enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science or a related field. Must be comfortable working with frogs, lizards, rodents and terrestrial arthropods. Must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid.

Horticulture Intern The selected candidate will assist the Aquarium horticulture staff with daily activities. Essential Functions: Assist with care of plants in the Rain Forest exhibits; Conduct plant maintenance, fertilization, propagation, and transplantation; Assist in display development; Perform special projects as determined by the horticulture staff. **Requirements:** Enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field. Must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid.

Marine Animal Rescue Program (MARP) Intern

The selected candidate will aid in all aspects of marine animals rescue program (MARP) operations, which involves the rescue, rehabilitation, and release of stranded marine mammals and sea turtles and implementing outreach efforts of the Aquarium's Ocean Health Initiative. The selected candidate is also responsible for technical and clerical assistance for the Conservation Department staff as necessary.

Essential Functions: Animal Care – participating in rescue and release trips, daily feeding, medical treatments, facility maintenance including cleaning and water changes, behavioral observations, and record keeping; Outreach – learning to interpret the MARP artifacts and conservation messages and participation in seasonal outreach and public education programs at the Aquarium and off site; Other duties as assigned – field work, etc. **Requirements:** College junior or senior majoring in environmental science or related field with course work in biology and ecology. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work. Must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid.

Marine Mammal Trainer Intern

The selected candidate is responsible for providing support to the marine mammal training staff. This internship's primary purpose is to teach the intern training theory. **There is limited hands-on animal contact during the internship.** *Essential Functions:* Prepares daily animal diets and dispenses vitamins as instructed; Responsible for the cleanliness and safety of all animal back-up areas; Assists in training, husbandry, and medical sessions; Participates in pre-show and pre-session preparations; Periodically participates in sessions involving swimming during enrichment and play sessions – no animals involved; Other duties as assigned. **Requirements:** College junior or senior majoring in life science or related field. Must have a basic understanding of marine mammal natural history. Must have good swimming skills. Must work well as a team member. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work. Must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid.

Water Quality Lab Intern

The selected candidate will assist in the water quality testing of all fish and mammal systems throughout the aquarium. Duties include testing water for salinity, pH, ammonia, nitrite, alkalinity, and copper according to lab procedures, and recoding neat, accurate data. The selected candidate will work closely with the Lab Technicians and the Animal Husbandry staff. **Requirements:** College junior or senior with general biology and chemistry work. Strong math skills and computer proficiency preferred. Must be available to work mornings. Must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid.

*Positions posted with AAZK, Inc. may also be found on
our website at www.aazk.org*

*Also, you may want to check out the AZA Member Institution job listings
at <http://www.aza.org>*

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Chinese Tigers to be Reintroduced to Wild; New Agreement Secured by “Save China’s Tigers”

The London and US-based conservation organization, Save China’s Tigers, has secured an agreement with the Wildlife Research Centre of the State Forestry Administration of China and the Chinese tigers South Africa Trust of South Africa on the Reintroduction of Chinese tigers (*Panthera tigris amoyensis*) into the wild, which was signed on 26 November in Beijing. Since 1990, China’s State Forestry Administration has been leading the effort to save the most critically endangered tiger sub-species, the Chinese tiger, ancestor to all other tiger sub-species, through the establishment of several Nature Reserves. Fewer than 30 Chinese tigers are left in the wild while 60 survive in Chinese zoos.

The agreement calls for the establishment of a Chinese Tiger Conservation model through the creation of a Pilot Reserve in China with African reserve management expertise, where indigenous Chinese wildlife will be reintroduced with the Chinese tiger as the flagship species. Conservation of the Chinese tigers will be combined with unique Chinese cultural heritage to create opportunities in eco-tourism for local economic development. Selected zoo Chinese tiger cubs will be sent to South Africa, where they will be trained to hunt effectively in a special area of 300 square kilometres that has been secured by Save China’s Tigers. To maximize the chances of success, this rehabilitation project will be

conducted in parallel with the on-going Meihuashan Chinese Tiger Rehabilitation project in Fujian, China. The Chinese tigers that have successfully regained hunting skills and are able to survive independently in the wild will be returned to a Pilot Reserve in China. While the tigers are being rehabilitated, China will start the work of surveying land, restoring habitat, restoring prey animals and other predators in the Pilot reserve. The first rehabilitated Chinese tigers are expected to be reintroduced into the wild in China in 2008, to coincide with the hosting of Olympic Games by Beijing.

China’s State Forestry Administration is leading this first time ever effort in human history to give a large cat such as the tiger a chance for survival through a large scale co-ordinated reintroduction effort. The Chinese Tiger Conservation Model is a brainchild of Ms. Li Quan, founder of Save China’s Tigers, a foundation which she established in 2000 in UK and the US. Save China’s Tigers has also summarized the Chinese tiger campaign as: Three Tigers: Spiritual Tiger, Cultural Tiger and Ecological Tiger. Save China’s Tigers is the first organization in the world dedicated to help China’s conservation of the Chinese tigers and other big cats.

For more information on the Chinese Tiger project, see <http://www.savechinastigers.org>

AAZK Membership Application

check here if renewal []

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Other staff & volunteers

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*Those not connected with
an animal facility*

**\$60 or up - Individuals
Contributing/Canada**

**\$100.00 or up
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MASTERCARD VISA Card # _____ - _____ - _____

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Signature _____

Mail this application to: AAZK Administrative Offices, 3601 S.W. 29th, Suite 133 Topeka, KS 66614-2054. Make checks/money orders payable to AAZK, Inc. Must be in U. S. FUNDS ONLY. Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



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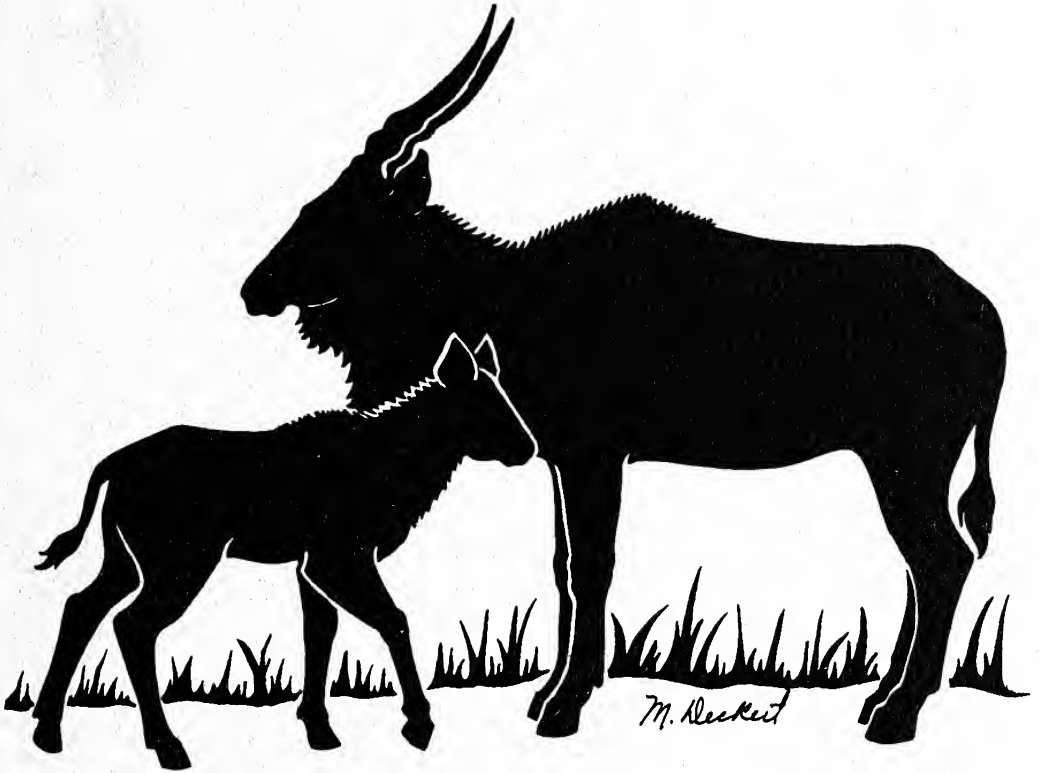
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ANIMAL KEEPERS' FORUM



The Journal of the American
Association of Zoo Keepers, Inc.
FEBRUARY 2003

Managing Editor: Susan D. Chan • **Associate Editors:** Gretchen Ziegler, Sequoia Park Zoo & Kayla Grams, Lovell, WY • **Enrichment Options Coordinators:** Jan Roletto, Arcata, CA & Dawn Neptune, Utah's Hogle Zoo • **Legislative Outlook Column Coordinator:** Georgann B. Johnston, Sacramento, CA. • **ABC's Column Coordinator:** Diana Guerrero, Big Bear Lake, CA • **Reactions Column Coordinator:** William K. Baker, Jr., Little Rock Zoo • **The Water Column Coordinators:** Dan Conklin and Kevin Shelton, The Florida Aquarium and Bruce Elkins, Indianapolis Zoo

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also serves as AAZK Liaison to the American Zoo & Aquarium Association

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Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, John Ball Zoo

AAZK Enrichment Notebook - Lee Houts, Folsom City Zoo



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About the Cover.....

This month's cover features a Giant Eland and calf (*Taurotragus oryx*) drawn by Mary Deckert, a Docent at the Los Angeles Zoo, Los Angeles, CA. Eland are the largest species of antelope and are found on the vast, grassy plains of Africa, most often on rough or overgrown ground. These browsing animals feed on leaves of trees and shrubs; they use their spiral horns to reach high branches. During the rainy season they feed on grass which is green and plentiful then. They can go without water for a long time. The family group consists of one male, several cows and their calves. Births take place all through the year, but especially in the rainy season. Eland have few natural enemies as they are well able to defend themselves with their formidable horns. The males make an unusual "tick, tock, tick, tock" sound as they walk--the noise comes not from their hooves, but from the clicking of the knee joint. Eland may stand 5-6 feet and weigh up to 2000 lbs. Gestation period is 250 days. Thanks, Mary!

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Manuscripts submitted either on disk or electronically as attachments to an email should be submitted in Microsoft WORD. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white or color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo. Photographs may be submitted electronically as either JPEG or TIFF file attachments.

Articles sent to Animal Keepers' Forum will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for AKF. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980; email is akfeditor@zk.kscoxmail.com<

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

Articles printed do not necessarily reflect the opinions of the AKF staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@zk.kscoxmail.com< You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@zk.kscoxmail.com<

AAZK Website Address: www.aazk.org

BFR Website: <http://bfr.aazk.org>

Scoops & Scuttlebutt



Recharter Packet Deadline Quickly Approaching

The annual AAZK Chapter Recharter Packets have been mailed and must be returned to AAZK Administrative Offices **by 1 March 2003** in order to avoid paying the \$100 late fee. If you have questions about filling out your forms, contact Barbara Manspeaker at 1-800-242-4519 (US) or 1-800-468-1966 (Canada). You can also reach Barbara via email at aazkoffice@zk.kscoxmail.com< Make certain when you return your packet that you have completed all required information and have included a check for your recharter fee. Make a copy for your Chapter records. Return of these forms is part of the Association's obligation to the Internal Revenue Service under our 501(c)(3) nonprofit tax-exempt status. Failure to have forms returned by all of AAZK's chartered Chapters puts that tax-exempt status in jeopardy, so your full cooperation is greatly appreciated.

Chapter Donation Benefits AAZK Projects/Programs

AAZK National has received an unrestricted \$500.00 donation from the San Francisco AAZK Chapter. In sending this donation, Chapter President Jessie Bushell noted that the Chapter hopes to make an annual contribution to support AAZK, Inc. as a part of their yearly budget. The Board of Directors of AAZK and the staff at Administrative Office wish to thank the members of the San Francisco Chapter for their generosity in helping to support the Association's projects and programs.

Election Nomination Reminder

The year 2003 marks an election year for the AAZK Board of Directors. There are four positions up for election. Those positions are held by Jacque Blessington, Kevin Shelton, Jan Reed-Smith and Linda King whose terms end with the 2003 Conference in Cleveland. New Board members will serve a four-year term from the close of the 2003 Conference until the conclusion of the 2007 National Conference. The deadline for making nominations is **28 February 2003**. Nomination forms may be found in the green pull-out section of the November and December 2002 issues of *AKF*. Nominees must be Professional members of AAZK in good standing and have been an AAZK member for at least one year. AAZK Nominations and Election Chair is Sheri Leavitt. For information or questions you may contact her at (409) 772-9977 or 281-534-4224.

First International Congress of Zookeeping Receives More Donations

The Roger Williams Park Zoo AAZK Chapter has donated \$1,000.00 towards expenses for the International Congress of Zookeeping to be held 2-10 October 2003 in The Netherlands. A donation for \$500.00 has also been received from the American Zoo and Aquarium Association (AZA). If you, your Chapter or your institution would like to help make this first-ever international zookeeping conference a success, you may send donations to AAZK, Inc., specifying that the funds are to go towards the ICZ. For further information about this conference check out their website at www.iczoo.org<

A Note from the Editor on AKF Columns

You may have noticed that several regular columns have not appeared in recent issues of *AKF*. The ABC's column by Diana Guerrero has taken a brief hiatus while she works on her second book. The Enrichment Options column is in a state of transition as we consider bringing some new editors on board in the coming months. At the moment, we would certainly encourage everyone to complete and return the Enrichment Survey which appears in this month's issue. The Water Column editors are working to determine which directions this column will take in the future. If you have questions or topics you would like to see covered by any of the *AKF* columnists, please send them to me at AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054, and I will make sure they get to the individuals involved in those particular columns. ---Susan Chan, *AKF* Editor

AAZK Announces Availability of Granting Programs

The American Association of Zoo Keepers announces the availability of two granting opportunities:

The Conservation, Preservation and Restoration (CPR) Grant – This \$1,000.00 grant is designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member MUST have an active role in the conservation effort submitted for consideration. The division of this grant between two projects is at the discretion of the CPR committee. Funds are made available only after a progress report and receipts have been submitted.

The Zoo Keeper Grants in Research – Two \$1,000.00 grants are funded annually to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator MUST be a full-time keeper and a member of AAZK, Inc. in good standing.

Deadline for application submission for either grant option is **1 June 2003**. Successful grant recipients will be announced at the AAZK National Conference in Fall 2003. The grant cycle runs from 01 January 2004 to 31 December 2004. For further information or an application see the AAZK Website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committees' Chair, jrsotter@iserv.net, 616-693-2680, Fax: 616-374-3263. Please specify which grant program you are interested in.

International Enrichment Conference Scheduled in South Africa

The Johannesburg Zoo, South Africa, is proud to announce that will be hosting the Sixth International Conference on Environmental Enrichment.

This exciting and informative conference will be held from 2 – 7 November 2003. The provisional conference attendance fee is US\$250, but this will be confirmed and reduced based on price and currency fluctuations towards the end of 2002. South Africa is an exciting destination that boasts a number of world class zoos as well as a plethora of extracurricular activities ranging from phenomenal game parks to peaceful wine routes. Please ensure that you make your travel arrangements early to obtain the most reasonable flights from your country. Please bear in mind that South Africa is a cost effective destination to travel to and is well worth the visit to this amazing part of the world. Further information can be obtained from our website which will be updated regularly to keep you posted www.jhbzoo.org.za. For further information please feel free to contact Mathew van Lierop who will be coordinating the conference at +27 11 646 2000 ext 233 or at mathew@jhbzoo.org.za

Websites of Interest to Keepers

The new website for the Animal Behavior Management Alliance (ABMA) was just recently activated. Check it out at: <http://www.theabma.org><

Elephant Care International

An independent program devoted to elephant healthcare and conservation. Check out their website at: <http://www.elephantcare.org><

Sumatran Tiger Trust

The Sumatran Tiger Trust website has now gone live and invites you to use it as an education tool in your zoos and hopefully get it linked to your zoo/conservation web sites. The Sumatran Tiger Trust is a registered international charity in the UK and based at South Lakes Wild Animal Park in the UK and Mareeba Wild Animal Park in Australia. Check out their site at: <http://www.tigertrust.info><

Regional Keeper Exchanges Sought

The Cincinnati Zoo would like to try some regional keeper exchanges. These would be with facilities within a 5-6 hour drive of the Cincinnati area. If interested please contact Dawn at dawn.strasser@cincinnati.zoo.org<

From the President.....




Well it's that time of year again. Everyone is filling out those IRS forms hoping for a return. And the AAZK Chapter officers are filling out the recharter packets. I would like to take a few minutes to address an important matter related to these activities. The past year has been difficult for many companies financially. Non-profits have not been immune to the economy by any means. I very much hope that each of you have weathered the lean times well. The AAZK Board of Directors recognized that this year has been difficult and voted not to raise membership rates. We are committed to keeping the Association affordable while making it desirable as well. This has not been an easy task. The National Association relies heavily on the strength of the individual Chapters. It is a credit to those Chapters that we have been able to keep the cost for individual members lower than just about any other similar association in the zoological field.

Now is the time when we need our Chapters' support. We are moving the Association forward with improving relationships with other groups and adding value to your membership. We want to offer you more and more, but at the same time we must remain fiscally responsible. We are continuing to investigate ways to generate funding for our programs.

We are in the process of signing agreements with the GreenFund Network to recycle used printer cartridges. This will be marketed to the Chapters as a means of raising money for themselves as well as National. And what better way to make money then by conserving resources! We are also looking into AAZK logo products such as clothing, mugs, pens, key chains, etc. This will help fund our programs while allowing everyone to show off their pride in the Association.

It is at this time that I ask each Chapter to step up and show their support for AAZK, Inc. Your Association needs you. Please consider adding a donation to National with your recharter packets. If each Chapter donated just \$100, it would generate over \$8000 for our programs and operating funds. Perhaps you could designate a portion of your next fundraiser to National. No amount is too small or too big! There is strength in numbers. I believe that there is nothing we cannot accomplish with that strength and help from each other.

Kevin Shelton, AAZK President
The Florida Aquarium, Tampa, FL



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AAZK Conference – Cleveland 2003

The Cleveland Chapter of AAZK and the Cleveland Metroparks Zoo are proud to host the 2003 National AAZK Conference, 26-30 September. The conference will be at the Sheraton Cleveland City Centre in bustling downtown Cleveland, OH. The room rates will be \$119. Conference registration will cost \$150. The pre-conference trip includes the Detroit and Toledo Zoos, 25-26 September. The post-conference trip will include the Pittsburgh Zoo and/or the National Aviary plus whitewater rafting, 1-2 October. A second post-conference option involves the International Conference of Zookeeping in The Netherlands. More information regarding the ICZ will be coming soon.

First Call For Papers

Deadline for abstracts: 1 July 2003

Deadline for papers: 26 August 2003

Our theme for the conference is "*Strange Situations...Wild Occupations.*" We are looking for papers, posters, or workshops that address novel issues in the zoo keeper profession. Presentations involving all taxons are desired. Topics of interest include husbandry techniques, training, enrichment, education, exhibit design, conservation, research, and professional development.

Four workshops are already planned for the conference. Presenters and moderators are requested for aquatics, avian husbandry, herpetology, and primatology. Workshops involving other topics are also strongly encouraged.

Abstracts must include the following information:

- Name of presenter and co-authors
- Zoological institution
- Position or title
- Title of paper, poster, or workshop
- Short bio of yourself (for introduction)
- Audio/Visual needs
- Contact information (including email if available)

Please limit abstracts to one or two paragraphs. Abstracts must include in detail the significance of the topic to be presented along with the results, conclusions, or benefits of the work described. Poorly written or incomplete abstracts will be returned.

Submit **two** copies of the abstract to:

Shane Good, Animal Keeper
Cleveland Metroparks Zoo
3900 Wildlife Way
Cleveland, OH 44109
Email: sjg@clevelandmetroparks.com
Phone: (216) 661-6500
Fax: (216) 661-3312

(Editor's Note: Please be aware that the dates for this conference are not the usual Sunday-Thursday schedule. The dates 26-30 September encompass the days Friday through Tuesday. Be sure you take this into consideration when requesting time off and making travel plans.)

Coming Events

Animal Behavior Management Alliance Conference- 23-28 February 2003. Hosted by Busch Gardens Tampa Bay and the Center for Elephant Conservation. For information contact Thad Lacinak at (407) 363-2651 or email him at Thad.Lacinak@AB-AdventureParks.com

Eleventh Annual International Association Of Avian Trainers and Educators Conference - 12-15 February 2003 in Portland, OR. Hosted by the Oregon Zoo and held at the DoubleTree-Lloyd Center Hotel. For more information contact Cathi Wright (wrightc@metro.dst.or.us) or Shannon LaMonica (lamonicas@metro.dst.or.us) or call them at (503) 220-5713.

2003 Elephant Ultrasound Workshop for Wildlife Veterinarians 26-20 March 2003 and 4-8 June 2003. At Riddle's Elephant and Wildlife Sanctuary, AR, USA. For registration information please contact elephantsanctuary@alltel.net

The 2003 All Florida Herpetology Conference & Conserving Amphibians and Reptiles Through Education, a PARC National Conference - Both events will be held at the Sheraton Hotel in Gainesville, FL. Presented by the Florida Museum of Natural History with assistance from the Santa Fe Community College Teaching Zoo. Held in association with a conference on Conserving Amphibians and Reptiles Through Education, organized by Southeast Partners in Amphibian and Reptile Conservation (SE PARC).

All Florida Herpetology Conference: 5-6 April 2003
Contact: Herpetology @ (352) 392-1721; e-mail: maxn@flmnh.ufl.edu; Florida Museum of Natural History, P.O. Box 117800, Gainesville, FL 32611. **(Call for papers and keynote speakers until 7 February 2003)** Visit AFHC website: <http://www.flmnh.ufl.edu/natsci/herpetology/afhc.htm>

Conserving Amphibians and Reptiles Through Education (PARC Conference): 6-8 April 2003
Contact: George L. Heinrich, Heinrich Ecological Services, 1213 Alhambra Way S., St. Petersburg, FL 33705-4620; phone: (727) 865-6255; e-mail: highpinc3@aol.com; Visit PARC website: www.parcplacc.org

Tenth Annual International School for Elephant Management - 25 April - 8 May 2003 - Riddle's Elephant and Wildlife Sanctuary, AR, USA. For persons having worked full-time with elephants for at least one year. For registration information please contact elephantsanctuary@alltel.net

Third Annual Rhino Keeper Workshop - 15-18 May 2003 in Denver, CO. Hosted by the Rocky Mountain AAZK Chapter and the Denver Zoo. Will include speakers and a day at the zoo. For further information contact Rocky Mountain AAZK Chapter President Dave Johnson at (303) 376-4900 or email Workshop Chair Chris Bobko at rhinoqueen@yahoo.com

Association of Avian Veterinarians 24th Annual Conference & Expo - 25-29 August 2003 in Pittsburgh, PA. To be held at Pittsburgh's Westin Hotel and the David L. Lawrence Convention Center. Theme is "Take Flight in Pittsburgh". Program will include lectures and Master Classes. If you wish to receive more information on presenting call the AAV Office at (303) 756-8380, ext. 13. Deadline is 25 October 2002. Fax# is ((303) 759-8861.

2003 AZAD Annual Conference - 9-14 September 2003. Hosted by Omaha's Henry Doorly Zoo, Omaha, NE. Interested parties may contact Judy Sorensen at 8040 Park Dr., Ralston, NE 68127-3744 or by email at howard@infinity.com

30th National AAZK Conference - 26-30 September, 2003. Hosted by the Greater Cleveland AAZK Chapter and Cleveland Metroparks Zoo. Watch for further information in upcoming issues of *AKF*.

Elephant Managers Association Conference - October 2-5, 2003 - Hosted by Knoxville Zoological Gardens, Knoxville, TN. For more information, call (865)-637-5331, ext. 359 or e-mail bhargis@knoxville-zoo.org

First International Conference on Zookeeping in 2003 - The Netherlands - Will be held between 2-10 October at Birdpark Avifauna. For further information please visit: www.iczoo.org

American Association of Zoo Veterinarians - 5-9 October, 2003 in Minneapolis, MN. Program sessions include Reptiles and Amphibians, Avian Medicine, Nutrition, Pharmacology (Nutricuticals and Phytochemicals), Vaccinations, AZA Programs (SSP/TAG Veterinary Advisory Updates), Advances in Technology and Diagnostic Testing, Case Reports and Practice Tips, Aquatics and Marine Mammals, Hoofstock, Carnivores and Small Mammals, Hospital Administration and Leadership, Primates, Pathology, Conservation Medicine, and Emerging Diseases. There will also be a poster session, veterinary and graduate student paper competitions, and workshops/wet labs. For additional information, visit the AAZV website at www.aazv.org or contact Wilbur Amand, VMD, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; Phone (610) 892-4812; Fax (610) 892-4813; email AAZV@aol.com

Sixth International Conference on Environmental Enrichment - 2-7 November 2003 in Johannesburg Zoo, South Africa. The provisional conference attendance fee is US\$250, but this will be confirmed and reduced based on price and currency fluctuations towards the end of 2002. South Africa is an exciting destination that boasts a number of world class zoos. Further information can be obtained from our website at www.jhbzoo.org.za Please feel free to contact Mathew van Lierop who will be coordinating the conference at +27 11 646 2000 ext 233 or at mathew@jhbzoo.org.za

AAZK Announces New Members

New Professional Members

Rebecca Lynagh and Michelle Dave, **Baltimore Zoo (MD)**; Justin Jones, Heather Hermann, and Stacey Heiler, **Riverbanks Zoo & Botanical Gardens (SC)**; Robin B. Lentz, **Jacksonville Zoological Garden (FL)**; Miranda Garcia, **Miami Metrozoo (FL)**; Stacey Wester, **Lowry Park Zoo (FL)**; Babs Steorts, **Gatorland (FL)**; Jessica Clowers, Chris H. Grassl, Lee Ann Hartlett and Michael Ogle, **Knoxville Zoo (TN)**; Tamara Muller, **Hatisburg Zoo (MS)**; Adam Felts and Debby Ames, **Columbus Zoo (OH)**; Lisa Browning, **Cincinnati Zoo (OH)**; Amber Jenks, **Washington Park Zoo (MI)**; Aimee Leslie, **Kansas City Zoo (MO)**; Elizabeth Eckermann, **Omaha's Henry Doorly Zoo (NE)**; Tyrene R. Fayard and Jaime Hayslette, **Audubon Zoo (LA)**; Jill McLaughlin, Michael Whitman and Beryl Patterson, **Wildlife World Zoo (AZ)**; Maryann Stosic, **no zoo listed (Surprise, AZ)**; Andrea Aviles, **Chaffee Zoological Gardens (CA)**; Adam Fink, **Oakland Zoo (CA)**; Steve Chariyasdatit, **Sacramento Zoo (CA)**; Kasia Jendres, **Toronto Zoo (Ontario, Canada)**.

Renewing Contributing Members

Bruce M. Thomas
Cambridge, MD

Renewing Institutional Members

F. O. Wilson Zoo Library
Oklahoma City Zoo, Oklahoma City, OK
Stephen R. Wylie, Executive Director/CEO

Rainforest & Aquarium at Moody Gardens
Galveston, TX
Mike Riley, Director

Dallas Zoo & Aquarium
Dallas, TX
Chuck Siegel, Deputy Director for
Animal Management

Chimp/Sign Language Program

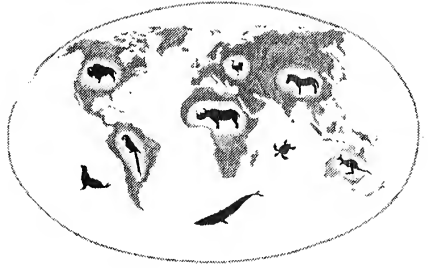
The Chimpanzee & Human Communication Institute (CHCI) is currently taking applications for our 10-week Summer Apprentice Program. Graduates, undergraduates, and post-graduates from various academic backgrounds (e.g. Anthropology, Biology, Psychology, Linguistics, Philosophy, etc.) are encouraged to apply. The dates of the program are June 15 to August 22, 2003.

The research at CHCI involves a group of five chimpanzees who use the signs of American Sign Language (ASL). Four of the five, Washoe, Moja, Tatu, and Dar, were part of the cross-fostering research that began with Drs. R.A. & B.T. Gardner. Each chimpanzee was raised in an enriched environment in which his or her human family members used only ASL, much like the environment in which a deaf child grows up. The fifth chimpanzee, Loulis, was adopted by Washoe in 1978 and learned his signs from other chimpanzees as a focus of research done by the co-directors of CHCI, Dr. Roger and Deborah Fouts. Currently, the chimpanzees reside at the CHCI on the campus of Central Washington University in Ellensburg, WA in a large state-of-the-art facility.

Apprentices are at the institute daily, cleaning enclosures, preparing meals and enrichment, making observations of the chimpanzees, and participating in one or more research projects. The first week is intensive training in laboratory jobs and chimpanzee behaviors. The philosophy of CHCI is that the needs of the chimpanzees come first. Apprentices are trained in humane care and research techniques. After several weeks each apprentice becomes more autonomous and has responsibilities in the research project.

The program fee is \$1800 and there is a non-refundable \$25 application processing fee. This does not include housing and transportation. Inexpensive housing is available on campus. A course in ASL is highly recommended but not required. For more information on the program and the application please see our web page at <http://www.cwu.edu/~cwuchci/apprentice.html> or contact Dr. Mary Lee Jensvold, CHCI, CWU, Ellensburg, WA 98926 jensvold@cwu.edu **The deadline to apply is 24 March 2003.**

International Congress on Zookeeping



By
Jeannette Beranger
International Outreach Committee Chair
American Association of Zoo Keepers, Inc.

Global Networks – Animal Welfare – Husbandry – Conservation – Professionalism – Knowledge

The AAZK's International Outreach Committee has been working diligently with the six other professional zookeeper associations to proceed with the development of the International Congress on Zookeeping to be held 3-7 October 2003 in Holland. Many exciting developments have happened and we are pleased to be receiving overwhelming support from the zoo community around the world. The website, www.iczoo.org is up and running and provides up-to-date information on the event, links to all of the other keeper associations, and the latest new videos from the minds of the Toronto Zoo keeper staff that brought you the infamous "Keeper Profiles" video.

Registration for the conference began in January. You can receive all details and forms from the website. It will be on a first come-first serve basis. I strongly urge all those interested in attending to sign up quickly because we have limited capacity in the hotel. The total registration costs will be AMOUNT HERE.

We have received abstracts from around the world and the program will prove to be an interesting and diverse collection of ideas. The following is the core committee's latest draft of the conference program:

Draft Program Structure For 1st ICZ

Saturday

8:30 a.m.	Welcome from: Mayor of Alphen a/d Rijn Director of Vogelpark Avifauna	Moderator: De Harpij
8:45 a.m.	Welcome from the organisers & an introduction to the Associations. Introduction to Keynote Speaker.	
9:00 a.m.	Keynote address: Conservation	
10:00 a.m.	Plenary session (3 speakers: conservation)	
11:00 a.m.	Break	
11:30 a.m.	Plenary session (3 speakers: conservation)	Moderator: AAZK
1:00 p.m.	Lunch	
2:00 p.m.	Plenary session (6 speakers: conservation)	Moderator: ASZK
4:00 p.m.	Poster session; authors by their posters	
5:00 p.m.	End of session	

Evening: To be confirmed

Sunday

8:30 a.m.	Plenary session (6 speakers: animal management)	Moderator: BdZ
10:30 a.m.	Break	
11:00 a.m.	Workshops (6 concurrently; animal management)	
12:30 p.m.	Summarise and end	
1:00 p.m.	Depart for Arnhem: Burger's Zoo; approx. 6 behind the scenes views / short workshops.	

Evening: Gala dinner at Zoo.

Monday

8:30 a.m.	Keynote speaker (Professional development)	Moderator: ABWAK
9:15 a.m.	Plenary session (4 speakers: professional development)	
10:30 a.m.	Break	
11:00 a.m.	Plenary session (5 speakers: professional development)	Moderator: AICAS
1:00 p.m.	Lunch	
2:00 p.m.	Workshops (6 concurrently; animal management)	
4:00 p.m.	Close of session	

Monday Evening: Trip to Amsterdam.

Tuesday

9:00 a.m.	Keynote speaker (outreach)	Moderator: AFSA
9:40 a.m.	Plenary session (4 speakers: outreach)	
11:00 a.m.	Break	
11:30 a.m.	Plenary session (4 speakers)	Moderator: De Harpij
1:00 p.m.	Lunch	
2:00 p.m.	Workshops: Building networks National / Regional Associations E-groups / E-newsletters 2 nd International Congress of Zookeepers	
3:20 p.m.	Awards	Moderator: AAZK
4:00 p.m.	Close of formal programme	

Evening: Silent Auction & games. (BdZ)

Wednesday, Thursday, Friday

Post conference trip to visit several Dutch zoos and local sites.

This conference without a doubt will be an exciting and diverse experience for all those involved. I urge all of the AAZK Chapters to show their support and help sponsor the conference and make it more affordable for the keepers who come from developing or poor countries. The core committee of the International Congress on Zookeeping has made the commitment to do our best to keep costs down so that all who want to attend can. If you are interested you can send checks or money orders to the AAZK National Office in Topeka (3601 SW 29th St., Ste. 133, Topeka, KS 66614-2054) and make note that the funds go towards conference support for the ICZ. Keep your eyes peeled for updated information as it comes in. See you in Holland!



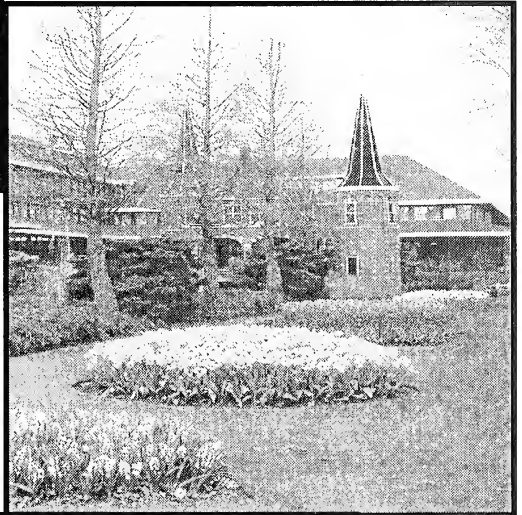
ICZ

3 -7 October 2003

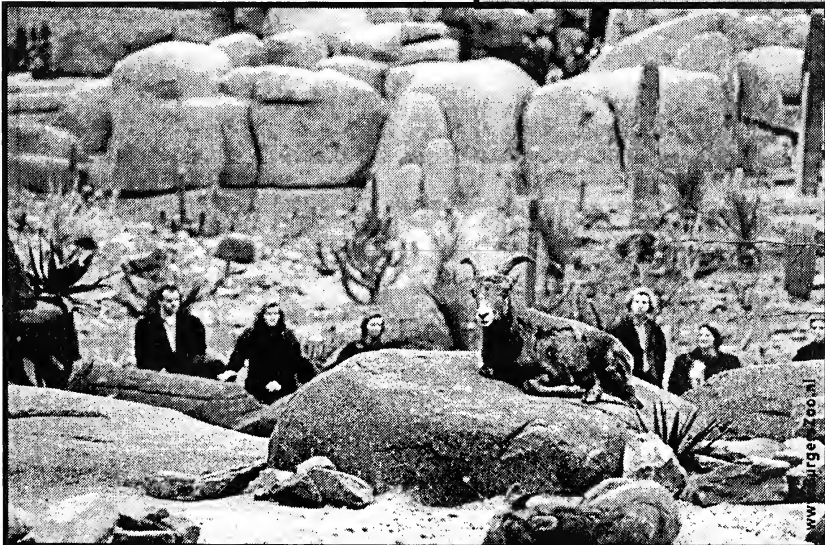


Amsterdam

ICZ conference site and
hotel at Avifauna



One of the indoor exhibits at the
Burgers Zoo where we will be
having our dinner Sunday night



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By

Jeannette
Beranger

AAZK Award Nominations Are Now Being Accepted for 2003

The AAZK Awards Committee is accepting nominations for the Lifetime Achievement Award (LA), the Meritorious Achievement Award (MA), and the new Environmental Enrichment (EE) Award. Nomination criteria for these three awards are listed below. Nomination criteria for the Jean M. Hromadka Excellence in Zookeeping Award (EZ), The Certificate of Merit for Zoo Keeper Education (CMZE), and The Certificate of Excellence in Exhibit Renovation (CEER) were published in the January 2003 issue of *AKF*. These awards will be presented at the 2003 AAZK Conference in Cleveland, OH. The deadline for all award nominations is **1 June 2003**. Information concerning the qualifications, nomination procedure, selection procedure and an explanation of the awards may be obtained by contacting Janet McCoy, Chair, AAZK Awards Committee, Oregon Zoo, 4001 S.W. Canyon Rd., Portland, OR 97221.

Lifetime Achievement (LA) Award

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Lifetime Achievement Award presented by the AAZK Awards Committee. This award is to be given at the end (retirement) of a keeper's career. The purpose of the award is to recognize outstanding commitment to professionalism as a zoo keeper over a long period of time, and significant contributions to the community.

The Lifetime Achievement Award was established by the 1993 Awards Committee, Janet McCoy, Chair. Rachél Rogers proposed the award to the AAZK Board of Directors. The award is presented at the annual AAZK National Conference.

Qualifications:

1. The nominee **must** be a full-time keeper retiring from a career of zoo keeping and employed in any North American zoological institution, aquarium or related facility.
2. The nominee must have been employed at least twenty years on permanent status at a zoo, aquarium or related facility.
3. The nominee **must** be nominated by **two** of his or her peers who have also been employed at that same zoo, aquarium or related facility. Supporting nominations may be submitted by management personnel from the same institution.

Nomination Procedure:

1. List name, position, institution's name, address, phone and Director, years of service in the field and the recommendation of peers or colleagues.
2. List and **document** outstanding achievements: exhibits, breeding, education, project participation, papers, etc. **Verification** of these facts must be signed by the zoo director, curator, or immediate supervisor of the individual being nominated.
3. Describe extra activities outside of zoo, aquarium or related facility work: working with conservation groups, animal related youth groups, rehabilitation wildlife officials, etc.
4. Paragraph of why the nominee fits the criteria.
5. Provide 3 - 5 references.
6. Deadline for nominations is **JUNE 1st** of each year.

Selection Procedure:

The Awards Committee, consisting of five keepers, will independently review each nominee.

Meritorious Achievement (MA) Award

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Meritorious Achievement (MA) Award presented by the AAZK Awards Committee. The purpose of the award is to recognize professional members of AAZK and AAZK Chapters, in good standing in the Association, for their extra work performed outside the keeper level of performance. This includes keeper participation in AAZPA Bean Award projects, dedicating time to other zoo related projects (conservation, wildlife education and individual breeding projects) and educating others in such programs as Scout Patch Programs.

The MA was established in 1982, by Mike Crocker, 1980-1985 CHAIR, as a means of recognizing work done outside of the scope of the Excellence in Zookeeping award. It is the only award presented by the awards committee that you have to be a member of the Association to receive. The award is presented at the annual AAZK National Conference.

Qualifications:

1. The nominee must be a full-time keeper and professional AAZK member employed in any North American zoo, aquarium, or related facility. In the case of an AAZK Chapter, it must be 'in good standing' having an up-to-date charter with the AAZK.
2. The nominee must have been employed at least one year on a permanent basis at a zoo, aquauium or related facility. In the case of an AAZK Chapter, it must have been active for at least one year.
3. The nominee must be nominated by his/her peers or colleagues, while supporting nominations may be submitted by other zoo, aquarium or related facility personnel. The nominators need not be from the same institution.

Nomination Procedure:

1. List name, position, institution's name, address, phone and Director, years of service in the field and the recommendation of a peer or colleague.
2. List and **document** the outstanding achievements: AAZPA Bean Award project participation, exhibits, breeding, conservation, etc.
3. The deadline for nominations is JUNE 1st of each year.

Selection Procedure: The Awards Committee, consisting of five keepers, will independently review each nominee.

The character of the award includes either a plaque or certificate, letter of notification to the institution's director and national recognition by professional journals. Such journals include: the American Zoo and Aquarium Association (AZA) and the Canadian Association of Zoos and Aquariums (CAZA) Newsletters, Animal Keepers' Forum (AAZK), Awards, Honors and Prizes: Volume 1; United States and Canada. The latter is published by Gale Research Company based in Wheaton, MD and found in medium to large sized libraries across the U.S. and Canada.

Deadline for Nominations is 1 June 2003

Environmental Enrichment (E) Award

The American Association of Zoo Keepers, Inc. (AAZK) is the administering organization of the Environmental Enrichment (EE) Award presented by the AAZK Awards Committee. The purpose of the award is to recognize outstanding keeper-initiated contributions to the art and science of environmental enrichment. It is hoped that recognition of outstanding efforts by keepers to improve animal care and welfare through environmental enrichment will provide incentive to keepers to continue to be leaders in this important endeavor.

The EE Award was established in 2001 by the AAZK Enrichment Committee. Lee Houts proposed the award to the AAZK Board of Directors. The award is presented at the annual AAZK National Conference.

Qualifications:

1. The nominee may be an individual, group, project or program that has improved the well-being of an animal or group of animals through outstanding keeper-initiated enrichment techniques.
2. Nominees must have excelled in one or more of the following categories:
 - Innovative techniques developed, implemented and evaluated.
 - Creative fundraising efforts implemented which increased the availability of enrichment items for staff to utilize.
 - Motivation of staff, volunteers and peers through development of an enrichment infrastructure that increased participation in in-house programs or disseminated information to the zoo community to advance the art and science of environmental enrichment.
3. The nominee must be nominated by a keeper.

Nomination Procedure:

1. List name of keeper(s) who initiated the enrichment, institution's name, address, phone and Director.
2. List and document outstanding achievements in one or more of the categories listed under qualifications. **Verification** of these facts must be signed by the zoo director, curator, or immediate supervisor of the nominee.
3. The deadline for nominations is JUNE 1st of each year.

Selection Procedure: The Awards Committee, consisting of five keepers, will independently review each nominee.

The character of the award includes either a plaque or certificate, letter of notification to the institution's director and national recognition by professional journals. Such journals include: the American Zoo and Aquarium Association (AZA) and the Canadian Association of Zoos and Aquariums (CAZA) Newsletters, Animal Keepers' Forum (AAZK), Awards, Honors and Prizes: Volume 1; United States and Canada. The latter is published by Gale Research Company based in Wheaton, MD and found in medium to large sized libraries across the U.S. and Canada.

Award Nominations should be submitted to: Janet McCoy, Awards Chair, The Oregon Zoo, 4001 SW Canyon Road, Portland, OR 97221.

AAZK Book Sale

Sale price is 20% off the Suggested Price
Previous books may still be available, with some price increases

<u>Sugg. \$</u>	<u>Sale \$</u>	<u>Item Title/ Description</u>
\$15.00	\$12.00	<u>Women of the Four Winds The Adventures of Four of America's First Women Explorers</u> – Elizabeth Fagg Olds. Read the exciting stories of four wild women who were true pioneers. 318 pgs. Paperback
\$20.95	\$16.75	<u>A Natural History of Amphibians</u> – Robert C. Stebbins & Nathan W. Cohen. This textbook style volume focuses on the natural history of all orders of amphibians worldwide and emphasizes their interaction with the environment. 304 pgs. Paperback
\$29.95	\$23.96	<u>A Neotropical Companion 2nd Edition</u> – John Kricher. The single most comprehensive guide to the neotropics available today. This edition has been substantially revised and expanded to incorporate new scientific information. 504 pgs. Hardcover
\$29.95	\$23.96	<u>Wild Cats of the World</u> – David Alderton. This book discusses the evolution, distribution and current status of wild cats, covering many of the lesser known species of Europe. Includes a full checklist of species and maps. 192 pgs. Color photos. Hardcover
\$75.00	\$60.00	<u>A Dictionary of Birds</u> – Bruce Campbell & Elizabeth Lack, Editors. 270 contributors provide coverage of modern ornithology in this landmark work. Includes migration, parental care, fossil birds, and descriptions of all bird families. 704 pgs. Hardcover
\$19.95	\$15.96	<u>Weird Nature, An Astonishing Exploration of Nature's Strangest Behavior</u> – John Downer. The ingenuity of all kinds of animals is celebrated including flying dragons, the “conga” lines of spiny lobsters, and the Wallace tree frog whose large webbed hands and feet allow it to glide as far forward as it drops vertically. 168 pgs. Color photos. Paperback
\$27.50	\$22.00	<u>Minding Animals Awareness, Emotions and Heart</u> – Marc Bekoff. An exhilarating tour of emotional and mental world of animals, where we meet creatures who do amazing things and whose lives are filled with mysteries. 256 pgs. Hardcover
\$21.95	\$17.56	<u>National Geographic Field Guide to the Birds of North America 4th Edition</u> – Mel Baughman & Barbara Brownell, Editors. Continues to be the most sought-after, authoritative, and easiest-to- access field guide. Features all species known to breed in North America, more than 800 in all. Paperback
	\$12.95	<u>Connecticut's Beardsley Zoo: The First Eighty Years</u> - Robin Demattia. Celebrate the Zoo's 80th anniversary highlighting the staff, volunteers, companies, city officials and animals that helped make the Zoo what it is today. 60 color and b&w photos, 64pgs. Paperback

To Order: List the items you are ordering along with your name and complete mailing address. Include a shipping fee of \$3.00 for the first item and \$2.00 for each additional item. Make checks payable to “AAZK Book “ (**US FUNDS ONLY – NO CASH OR COD's please**). Sorry we cannot process credit card orders. **Call or fax for shipping fees when ordering from outside the continental United States before sending any money. We will work to find the best form of shipment.**

Mail requests to: AAZK Beardsley Chapter, Attn. Linda Tomas, 1875 Noble Ave., Bridgeport, CT 06610-1600. Phone: 203-394-6563 Fax: 203-394-6566 Email: beardsleyz@aol.com



REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

*By William K. Baker, Jr., Curator
Little Rock Zoo, Little Rock, AR*

Question

We are currently using pump shotguns set up for hunting purposes for potential crisis situations, what can we do to upgrade to make them more suitable for a crisis?

Comments

Historically, numerous zoological institutions have utilized shotguns, and in particular 12-gauge pump shotguns as part of their firearms programs for dangerous animal escapes, (North American Crisis Management Survey 1996). This really comes as no surprise when considering that as a weapon of choice, it is cost effective, readily available, and easy to train the staff on.

Still, the vast majority of the time, what comes off the shelf at the local gun shop is really oriented more towards hunting than tactical usage. There are of course exceptions to the rule, and this situation is no different. Shotguns that are oriented for use by law enforcement or military personnel are available, but as a general rule they tend to go for considerably more money.

So, in reality there are two options: One, buy a firearm that already has all the bells, whistles, and design features from off the shelf. Two, modify an existing firearm as an upgrade or build up an off the shelf model to save money. In past columns, I have presented the numerous variations that are available from after-market suppliers in regards to modifying and upgrading firearms. Rather dwelling on why someone might wish to modify a firearm, I will instead restrict my comments exclusively to the available options and where they can be procured.

TacStar

This company manufactures numerous products specifically for modifying shotguns including Mossberg, Remington and Winchester. Their product line includes: Slings, ventilated barrel shrouds, tactical grips, SideSaddle® ammunition carrier, barrel magazine clamps, magazine extensions, tactical lights, and shotgun cases.

Available through: Cabelas
400 E Avenue A
Oshkosh, Nebraska 69190

800-237-4444
www.cabelas.com

Speedfeed

This company specializes in after-market products and their line includes: Synthetic stocks and forearms, of which, certain designs have integrated ammunition storage in the stock.

Available through: Brownells, Inc.

200 South Front Street
Montezuma, Iowa 50171

515-623-5401
www.brownells.com

Choate and Scattergun Technologies

These companies specialize in after-market products for modifying existing firearms. Their line includes: Synthetic stocks and forearms, magazine extensions, tactical lights, pistol grips, and numerous other products.

Available through: Brownells, Inc.

200 South Front Street
Montezuma, Iowa 50171

515-623-5401
www.brownells.com

Next Month: Animal Keepers regularly work in direct proximity to large hoof stock. Do you have any recommendations for maintaining a safe work environment?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training

Websites of Interest to Keepers

You might like to check out the following websites:

Wildlife Information Network Site
<http://www.wildlifeinformation.org>

Savanna Elephant Vocalization Project's website
<http://www.elephantvoices.org>

Save the Rhino Monthly Update Ezine
<http://www.savetherhino.com/members.php?id=12>

Zoo Tycoon
<http://www.microsoft.com/games/zootycoon/ultimatezookeeper.asp>

The Water Column

By

*Dan Conklin, Senior Biologist, Florida Aquarium
Bruce Elkins, Curator of Waters, Indianapolis Zoo
Kevin Shelton, Associate Curator, Florida Aquarium*

The Importance of Quarantine for Aquarium Animals

Quarantine for aquarium animals is sometimes underestimated or even overlooked when planning, expanding, and stocking existing aquatic exhibits. Inadequate funding and space are likely reasons for this. However it is also critical to understand the importance of isolating new acquisitions and prophylactic treatment before they are added to a closed system exhibit. Hopefully this understanding can act as a force to rationalize the need for making the funds and space available.

Aquatic animals in the wild generally live with disease causing organisms in a balance preserved by various environmental factors. For example, living space is an obvious yet important consideration. Parasites which would normally have a difficult time finding a host in the expanse of the river, lake, or ocean would build to epidemic levels in a short period of time in our small captive systems because of the higher frequency of contact between host and parasite. Sometimes pathogens can go undetected for a significant period of time only to manifest as a mortal infection when the fish's immune system is suppressed for one reason or another. This is why it makes sense to take steps to eliminate any parasites before placing the animals on display even if none are detected on the new arrivals.

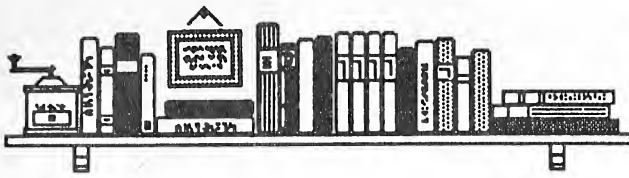
Additionally, there are several good reasons to avoid treating animals on display: 1) If there are invertebrates present the fish medications can be fatal to them; 2) If an exhibit is repeatedly stocked and medicated after each addition, multiple treatments on previously existing specimens can be harmful; 3) Often times, specimens affected by pathogens are not of exhibit quality until treated properly; 4) Many of the medications discolor the water; 5) Many of the medications will damage the established biological filtration of the system; 6) Some parasites, such as egg laying monogenetic trematodes have a portion of their life cycle which is unaffected by treatment and are difficult to eliminate because they can continue their life cycle and emerge after treatment is removed from the system. In this case, only the timely removal of specimens from quarantine at the end of treatment will avoid repeated infection. After that the quarantine system can be cleaned and bleached to assure the elimination of any pathogens

Details concerning specific diseases and treatments are beyond the scope of this article but are available in some excellent references such as Fish Disease: diagnoses and treatment by Noga, and The Manual of Fish Health by Andrews, Exell, and Carrington.

A quick reminder: The authors of the Water Column are always willing to answer any questions you might have. They can be about filtration systems, water chemistry, or aquatic life. If we don't know, we will find out for you! We also welcome feedback from readers about previously published columns. Questions and comments may be submitted to us by email at:

Dan: dconklin@flaquarium.org/
Kevin: kshelton@flaquarium.org/
Bruce: belkins@indyzoo.com/

Or by mail at: Kevin Shelton, The Florida Aquarium, 701 Channelside Drive, Tampa, FL 33602.



Book Review

Among the Bears

By Benjamin Kilham & Ed Gray

2002 - Henry Holt

115 West 18th Street, New York, NY 10011

ISBN - 0 8050 6919 4

304 pp - \$ 26.00 USD, full-color insert

*Review by Sasha Nelson, BS, BA, Postgrad Dip Zool
Graduate Student, Centre for the Public Awareness of
Science at The Australian National University,
Canberra, Australia*

Walking in bear country heightens the senses as every snap of a twig, every dark shadow, every groaning pine seems to portend a sighting. Naturalist, Benjamin “Ben” Kilham’s story with its vivid descriptions of bears and bear country, was a delightful opportunity to allow my imagination free reign to feel as if I was walking *Among the Bears*.

Kilham is a first-time author who is dyslexic. For that reason he was helped by nature writer Ed Gray to create the book. Kilham and Grey have skillfully woven the story. Even though I was reading an advanced copy, which had not gone through final editing, I found little evidence that the primary author has a learning disability. The book is written as a sincere first person narrative. The authors tell of the perspective Kilham has developed observing the numerous black bear cubs which, as a wildlife rehabilitator, he has fostered.

The first half of the book follows the daily life of Kilham and the first of the cubs to come under his care. The careful detail in the first 15 of 26 chapters orients the reader to Kilham’s way of thinking. The time spent in early chapters to describe Kilham’s methods allow for an exhilaration of the storytelling in the later half of the book. In the final half of the book it becomes evident that the first cubs, which have reached maturity at this point in the story, became models influencing Kilham’s care of later cubs. The book includes some interesting passages of events that occurred behind the scenes when National Geographic filmed Kilham’s story, like the time a producer’s perfume aroused one of the male cubs into scent marking. The film is a terrific companion to the book.

The final chapter of the book is an attempt to synthesize years of careful observations into theoretical arguments to support what Kilham claims is a “new science”. This last chapter hints at the inexperience of the first time author and his co-writer. By waiting until the final chapter to present arguments for Kilham’s “science,” they attempt to do in a few short pages what might have been better done if made throughout the book. The chapter makes me wonder what audience they had in mind while writing - arm chair naturalists who will likely find the last chapter full of difficult jargon or scientists which the writers acknowledge may find Kilham’s methods amateurish.

Trained ethologists might especially find Kilham’s methods undisciplined, but they are never the less highly interesting. I was especially intrigued by the comparisons made between black bear and great ape behavior. I am not entirely convinced that Kilham’s observations have “pioneered a new science.” After all, many of his observational methods were modeled upon those pioneered by primatologists like Jane Goodall. And the techniques for bear rehabilitation are similar in many ways to those used by Russian biologists raising orphaned brown bears.

Despite these weaknesses to his "science" I do hope that Kilham receives recognition for his diligent and extensive observations of black bears. Perhaps his story can provide a new perspective for ethologists and long-time bear keepers. I certainly believe the book to be an inspiration to all the dedicated wildlife watchers in the zoo community as doubtless Kilham's efforts have contributed a great deal to what is known about the behavior of black bears. If he, an amateur naturalist, was able to do this with little training or support imagine the impact zoo volunteers and staff can make with their resources and access to expert assistance.

Kilham often refers to himself as a momma bear which is a highly amusing comment from a man as burly and rough as the primary author, who appears with two of his charges in a photo on the cover of the book. While it might be difficult to imagine Kilham as a momma bear, his book is far from difficult to read. Finally, *Among the Bears* is remarkable in its ability to plunge readers into the dense vegetation of the New Hampshire hardwood forests - a reading environment brimming with the sounds and scents which fill the lives of wild black bears. A story that shouldn't be missed by nature and wildlife enthusiasts.

Three Types of Data Transfer Forms Available from AAZK

Just a reminder that three different types of data transfer forms are available to requesting institutions from AAZK at no charge. These forms are designed to be used whenever an animal is shipped from one facility to another so that important information on that animal can be passed on to the receiving keeper and veterinary staffs.

The following forms are available by contacting Barbara Manspeaker at 1-800-242-4519 (U.S.) and 1-800-468-1966 (Canada), or by emailing your request to aazkoffice@zk.kscoxmail.com

- Animal Data Transfer Form (ADTForm) - includes information on diet, reproductive history, general medical history/physical conditions, and enclosure/maintenance data on animal(s) being shipped.
- Enrichment Data Transfer Form (EDTForm) - includes information on behavioral history, enrichment currently used and how implemented (food, exhibit, artificial, etc.), safety concerns for animal(s) being shipped.
- Operant Conditioning Data Transfer Form (OCDTForm) - includes general background information, training specifications, training schedule, behaviors trained and methods used for animal(s) being shipped.

These forms are provided free of charge as a professional courtesy of AAZK, Inc. We encourage all zoos, aquaria and other animal care facilities to adopt the use of these forms when shipping animals. We extend our thanks to the following institutions for assisting in the printing expenses for these forms: Columbus Zoo (ADTForm), Arizona-Sonora Desert Museum (EDTForm), and Disney's Animal Kingdom (OCDTForm).

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Please let us know when you change your address! It now costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@zk.kscoxmail.com to report your new address.

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If you are interested in ordering a copy of the 2002 Proceedings containing the papers presented at the joint AAZK/AZH National Conference held in Kansas City, MO, you will need to fill out and return the form on the next page with the appropriate payment. All orders must be prepaid in U.S. Funds ONLY. Conference Proceedings are planned to begin shipment in January 2003. Once shipped, domestic orders should take about two weeks; overseas orders within 10 days by air mail. Prices are as follows:

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Order Now !

Enrichment Survey

Name (optional): _____

Institution: _____

May we contact you? Yes _____ No _____

Email/Phone Number _____

* Please check off the animal groups that are part of your husbandry routine:

Mammals: _____

Carnivores _____

Elephant _____

Giraffe _____

Great Ape _____

Hoofstock _____

Marine Mammal _____

Marsupial _____

Primate _____

Rhino/Hippo _____

Rodent _____

Amphibians _____

Arthropods _____

Birds _____

Fish _____

Mollusks _____

Reptiles _____

Other _____

If other, please list:

* Is enrichment a required part of your husbandry routine by management?

Yes _____

No _____

* Please write the animal group from the list on opposite page and state how often (on average) enrichment is given, either per day or per week.

Animal group

Per Day

Per Week

* How soon is enrichment removed after initial placing?

Next day _____

2-3 days _____

4+ days _____

* If it is removed the next day, are there any exceptions for it to stay in longer?

* On average, how long are you able to observe an animal's response to the enrichment provided:

Less than 1 minute _____

2-5 minutes _____

5-10 minutes _____

10+ minutes _____

* Is your enrichment divided up into categories? (i.e. foods, sensory)

Yes _____

No _____

* If yes, please list the categories:

* Next to the categories you listed, please rank the rate of use from most often to least often (1 being category most often used).

* If no categories are used, generally what type of enrichment is most often used: foods/feeding, sensory, environmental enhancements, toys, behavioral or social options?

* Do you use a calendar or other means of scheduling enrichment?
Please explain.

* Are you required to document enrichment provided?

Yes _____ No _____

* If yes, how?

Brief listing as "Enrichment Given" in daily report _____

Detailed description of enrichment in daily report _____

Detailed description in a separate enrichment log _____

Other: _____

* When implementing new enrichment, do you have an approval form to fill out?

Yes _____

No _____

* If "Yes", who approves the enrichment request:

Enrichment Coordinator _____

Lead Keeper/Area Supervisor _____

Curator _____

Director _____

Veterinarian _____

No approval necessary _____

Other _____

Please return this survey by 1 May 2003. Send to: AKF Enrichment Survey, AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Results will be published in a later issue of *Animal Keepers' Forum*.



Artist: Mary Deckert

OPERANT CONDITIONING WITH POLAR BEARS - ANOTHER FORM OF ENRICHMENT

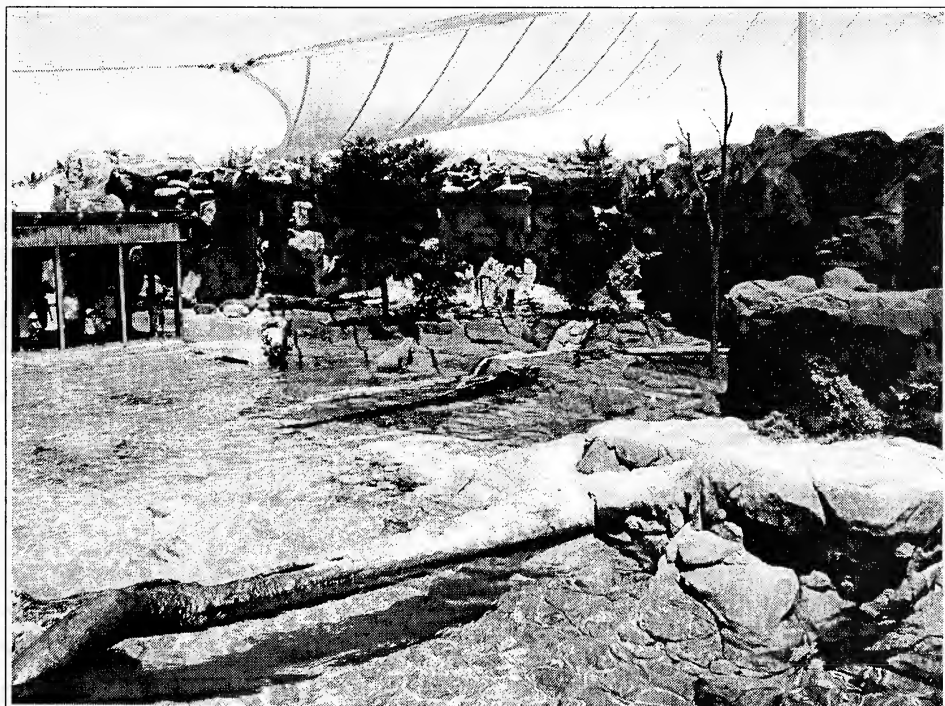
By

Sharon Holden, Kerrie Haynes-Lovell & Des Spittall*
Polar Bear Shores, Sea World Enterprises
PO Box 190, Surfers Paradise QLD 4217, Australia
Email: polarb@seaworld.com.au

After three years of extensive research, planning and development, Sea World Australia has arguably the most sophisticated and innovative Polar Bear exhibit in the world (home to six-year-old male "Ping Ping", 18-year-old female "Kanook" and our new arrivals "Liya" and "Lyutyik", one-year-old cubs).

Polar Bear Shores (PBS) simulates a naturalistic summer arctic exhibit, equipped with environmental enhancements to create an unpredictable environment. It also includes five air-conditioned dens (four with chilled saltwater pools), plus a specially designed maternity den and a large off-display exercise yard complete with pool, climbing structures and foraging pit.

This AUD\$7 million complex is state of the art, however there is still more to successfully managing polar bears in captivity. Polar bears are notorious for displaying stereotypic behaviors, so an extensive behavioral enrichment plan was developed to compliment the environmental enhancement system. Together they form the Polar Bear Shores Enrichment Program.



Main Exhibit Overview

POLAR BEAR ENRICHMENT PROGRAM

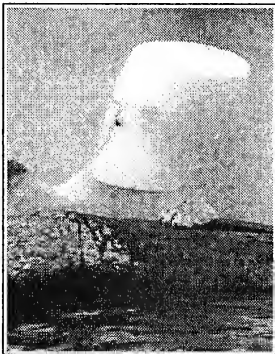
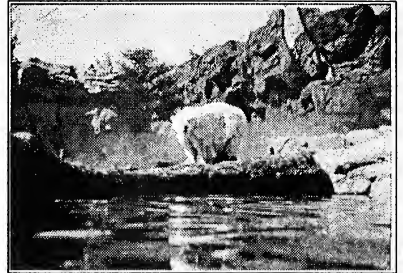
Environmental and behavioral enrichment are often intertwined to form a program that provides animals in captivity with a more challenging and stimulating environment to increase the range and diversity of natural behavioral patterns.

The Polar Bear Enrichment Program comprises six categories:

1. EXHIBIT DESIGN

Simulates a natural summer arctic environment using:

- natural furniture (logs, rocks, creek bed, garden beds with natural foliage, digging pits)
- rock formations varying in height
- large salt water pool and three fresh water ponds with waterfalls
- weather controls using rain, wind generators and fogging system

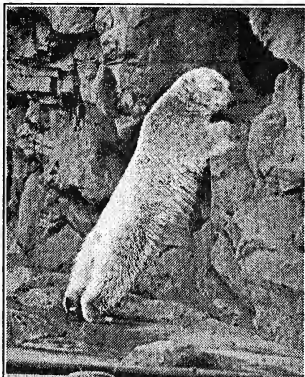
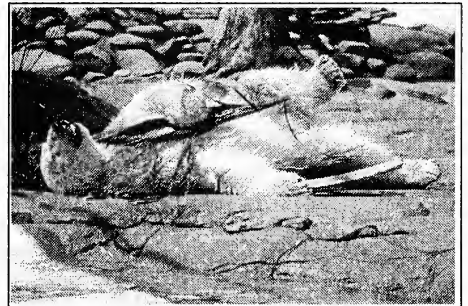


2. NOVEL OBJECTS

- Natural items (bamboo, movable logs, browse, tree stumps)
- Non-natural items (assortment of toys, ropes, containers, marine equipment such as boat buffers, etc)

3. SENSORY STIMULATION

- Olfactory – herbs, spices, essential oils, perfumes
- Tactile – browse, flowers, different substrates
- Taste – food items, spreads, syrups, and frozen food items
- Visual – live fish, natural formations, barriers and elevations

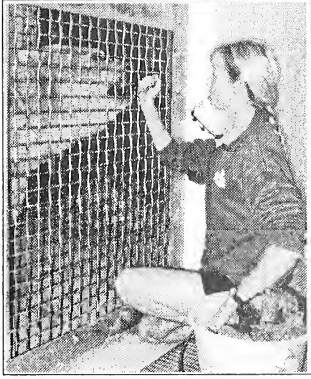


4. FEEDING STRATEGIES/FORAGING

- Hidden, scattered food and random feeding methods
- Iceblocks (fishicles, etc)

5. SOCIAL GROUPINGS

- Able to display bears together in naturalistic habitat with natural visual barriers (garden beds with trees, rock formations and large logs, etc).
- Rotating bears on exhibit and in back of house areas, allowing for solitude or choice of being in close proximity



6. OPERANT CONDITIONING

Operant conditioning (or behavioral training) using positive reinforcement techniques for husbandry/preventative medicine purposes.

It is this last form of enrichment that this paper will focus on; the “nuts and bolts” of our operant conditioning program.

OPERANT CONDITIONING

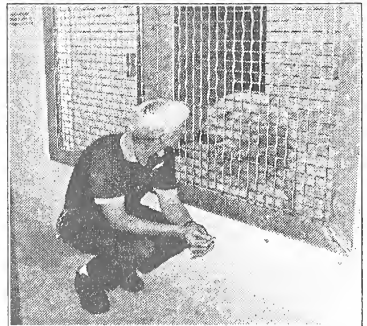
“The primary goals of an enrichment program are to provide a stimulating environment that allows animals to make choices, giving them some level of control over their environment” (Steve Martin, Natural Encounters) and to encourage a natural range of behaviors similar to the animal’s wild counterparts.

Training is teaching; being trained is learning. It is a problem-solving process that can easily be as challenging and rewarding as the most complex enrichment device (Tim Desmond ... Gaile Laule, 1998).

Operant Conditioning, using positive reinforcement, has proved to be a valuable technique as an animal care and management tool, resulting in benefits not only for the animals, but also for the caretakers, veterinarians and others concerned with the welfare of captive animals (Active Environments, 1993).

This type of training/conditioning relies on the voluntary co-operation of the animal to succeed. It can also assist with routine husbandry needs (including crate/den training), identify and address potential medical concerns before they develop, minimize stress related behavioral problems (such as stereotypic behaviors), as well as offer mental stimulation, a form of behavioral enrichment.

At Polar Bear Shores, we chose to incorporate operant conditioning with our four bears. Positive reinforcement training through “protected contact” was the preferred training method. Protected contact is made possible through 40mm square stainless steel mesh windows and doors of the five dens allowing full visual of the bears and presentation of different areas of the body.



Kerrie & Lyutyik

BUT WHAT TO TRAIN FIRST?

When developing our training program we looked at some key points which would assist with identifying what behaviors would be beneficial for our polar bears, keepers and veterinarian:

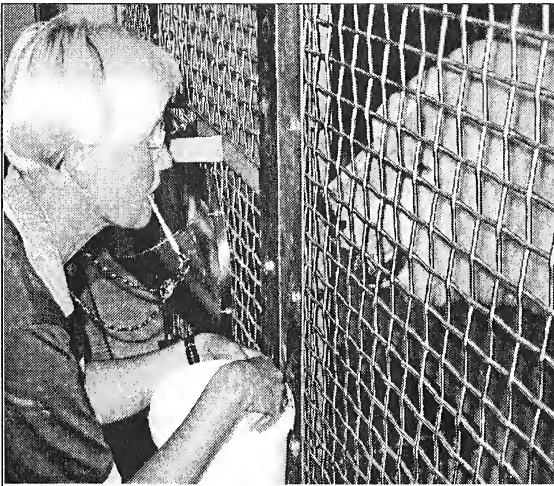
1. What are the most common health/physical problems with captive polar bears?
2. What are the management issues with regards to housing polar bears?
3. What preventative medicine techniques could we safely incorporate into the program?
4. Are there any individual behavioral problems or concerns with any of the animals?
5. Are there any health/physical concerns with the bears currently that need to be addressed?

After prioritising the behavioral, husbandry, medicinal and daily management issues, we began to implement regular training sessions.

TRAINING SESSION - GOALS

BRIDGE ASSOCIATION

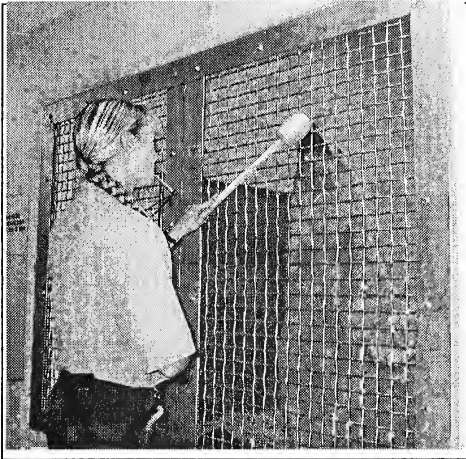
Because we were looking at using positive reinforcement training, our first goal was to establish “bridge” association. The bridge (also known as a conditioned reinforcer) is a training tool that bridges the time between a (correct) specific response and the reward given (in our case food reinforcement). When coupled with a requested behavior, or cue, the bridge tells the animal “yes that is correct!” (terminal bridge). In some instances, trainers use the bridge during a behavior “yes that is correct, keep going” (intermediate bridge). Here at Polar Bear Shores we only use the former of the two methods.



Kerrie teaching Kanook the bridge using dog whistle. A dog whistle is used as the bridge and the bears quickly learned the sound of the whistle is associated with food.

TARGETS

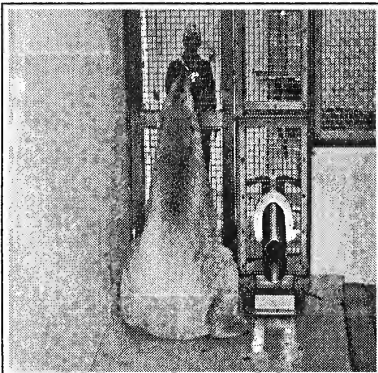
Next we introduced a target. This is either a hand (closed fist, left or right) or a target stick using 20mm PVC piping with a float on the end. The purpose of the target is to have the bears touch the target (hand or stick) with their nose and follow the target to wherever it moves. This is a useful tool when shaping other behaviors such as chest and shoulder/leg presentation (changing the topography of the animal). By using the target we can move and position the bears as needed. It can also be used to “station” the bears while doors or slides are closed and opened, as well as positioning on scales to obtain regular weights.



Sharon with Liya using a target stick

BASIC BEHAVIORS / CUES

After the bears were responding 100% to the bridge and confident with the target, we progressed to simple body positions which would later be used in preventative medicine desensitisation. These cues include:



- Sit – relax, similar position to that of a dog (see picture)
- Up – rise up on two legs (still in sit position or full stand)
- Down – come down from raised position
- Lie down – abdomen to floor, facing forward

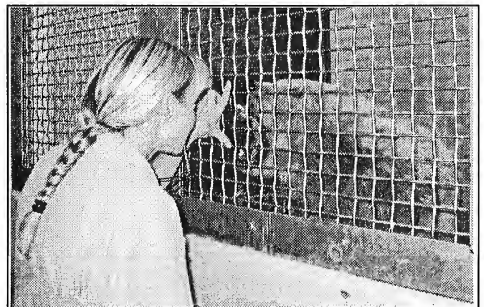
A recall (metal on metal sound) was also introduced to call bears off-exhibit or into a particular den. The recall is normally coupled with the bear's name and associated with something positive (i.e. enrichment, diet, fresh bedding/browse, etc).

PREVENTATIVE MEDICINE

We began developing other behaviors for husbandry/preventative medicine purposes:

1. Open - Mouth/Teeth Inspection – this was achieved by touching outer lips with the thumb and forefinger, gradually approximating the behavior from slightly curling the lips to a full mouth open showing teeth and holding duration until bridged and rewarded.

Sharon shaping “Open” with Lyutyik



It was through shaping this behavior that we discovered our adult male bear, Ping Ping, had a discolored lower left canine. After having this inspected by a specialized dental veterinarian, it was confirmed the tooth was dead and needed root canal surgery. Had we not discovered this bad tooth, an infection was likely to have formed and extended along his jaw line resulting in a serious medical problem. This was avoided due to this training program and a successful root canal under general anesthetic was performed.

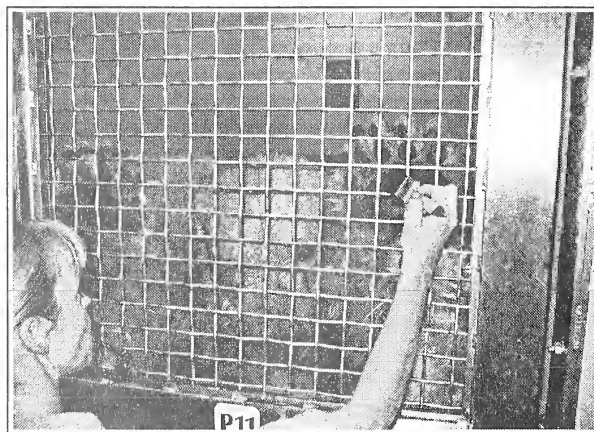


Teeth presentation with Ping Ping

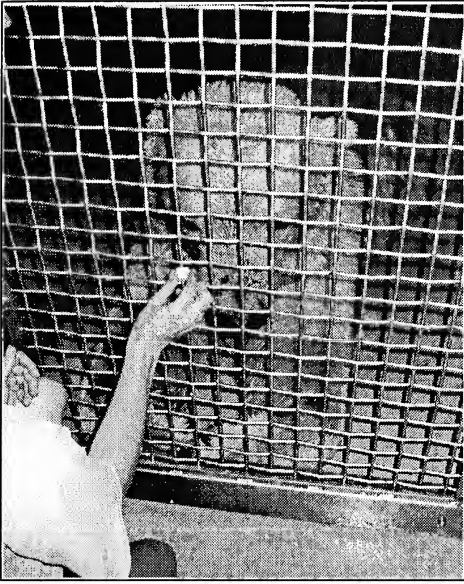
To date Ping Ping reliably offers a mouth/teeth inspection with tongue depressor to the outer lips for better visual of canines and back teeth. We will soon begin developing this behavior further by brushing his upper incisors with toothpaste due to his gum receding in this area (we may need a supply of toothbrushes to shape this one!)

2. Paw Presentation and Treatment – polar bears have a tendency to incur problems with foreign objects becoming embedded in-between the toes and fur of their feet, in addition to possible cuts and abrasions to their pads. We initially focused on the underside of the bears paws (pads) and through gradual desensitisation have been able to add various medical aids to this presentation:

- Q-tip*/cotton swab (touch and rubbing pads)
- paint brushes, various sizes (to apply topical treatment)
- Betadine® spray to pads



Paw presentation with desensitisation to brush



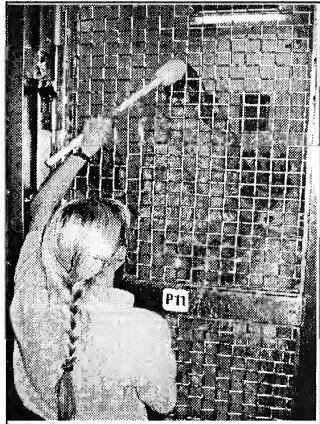
Ping Ping offering both front paws

We have recently started to extend this paw presentation and treatment by shaping a front/top paw presentation with Ping Ping. Again, desensitisation to Q-tip®/cotton swabs and paint brushes is being included in this behavior (incorporating acceptance to forceps in the near future). The cue is the same for both sides of paw (cue being “paw”) using different positions to avoid confusion. Front paw presentation is given in a lie down position whereas pads (back/underside of paws, forefeet only) are given in sit/stand position.

Below are more preventative medicine behaviors we are in the process of developing/shaping:

3. Abdomen/Chest ... Genital Presentation -

by using the target and ‘up’ cue, an abdomen/chest presentation is possible. The higher the target, the closer the bear comes to the window/door. Ultimately, the goal is to have the bear press against (or close to) the mesh for touching of different areas of abdomen/chest and genital area.



Target stick used to help with chest presentation

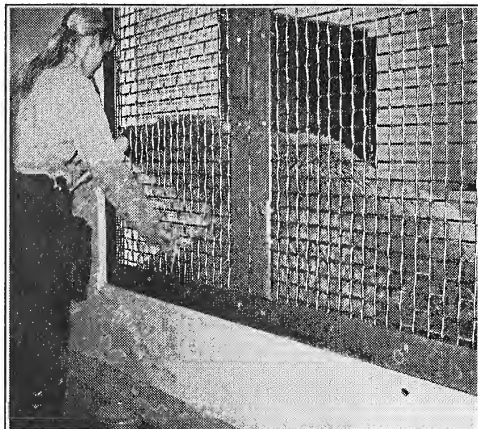


4. Foreleg (underside) Presentation— using “touch”

as the cue with a long Q-tip®/cotton swab. Desensitising Ping Ping to touching both of his front legs while in ‘up’ position as this area is often pressed against the door or window. We have progressed to asking for longer duration and desensitization to a syringe and needle for a possible injection site.

Beginning stage of desensitisation to syringe

5. Shoulder/Front Upper Leg Presentation – using target to obtain a side profile positioning with the bears. Utilizing a ledge inside the den which encourages the bear to lift front leg up and rest it on the ledge. This offers an ideal opportunity to incorporate desensitization to a needle and syringe for another possible injection site and possible blood draw (a behavior that has not been achieved with polar bears to date).



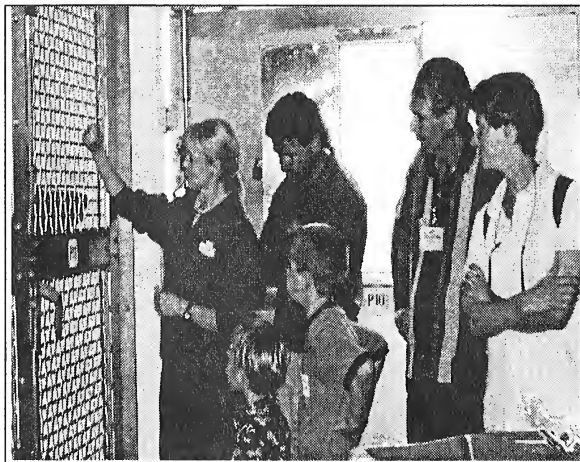
Using target and second hand to encourage leg presentation

CHALLENGES CAN BE OVERCOME

When developing a new program (of any kind) there are going to be challenges and “teething” problems. We have found each bear had a unique challenge with regards to training and we adapted to these individual needs and overcame these challenges over the course of implementing this program. Of course, new concerns arise from time to time, and we have become flexible in our approach with our main priority being the well-being of the bears.

PING PING

Ping Ping is young, enthusiastic and a fast learner, however he is not a confident bear. Noises, distractions, and changes in routine can see him regress considerably with training. He occasionally shows signs of insecurity and fear in the presence of people, so developing a strong, positive rapport and trust was the priority with Ping before tackling any behaviors. Frequent hand feeding of his diet was incorporated into our daily routine that saw tremendous improvement in his confidence and overall acceptance of new things and people.



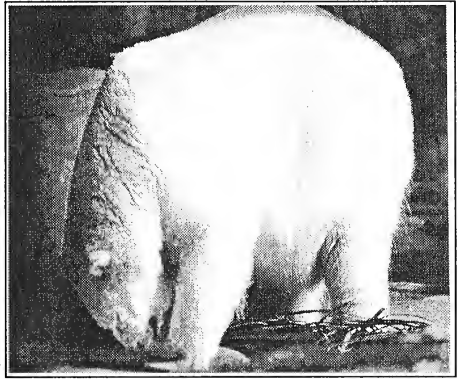
Training session for visiting vet

Training sessions soon became very reinforcing to him due to the positive attention and rewards he received. ‘Behind the Scene’ tours were randomly incorporated into the sessions and general visitors also became positive to Ping Ping. We are mindful of loud noises and situations that may set him back in training and with our relationship with him and endeavor to “set him up to succeed” in all sessions and use all dens and off-display areas for training to avoid associations with a single location.

KANOOK

Kanook is 18 years old and has lived in two different facilities before joining us here at Polar Bear Shores. Kanook has seen it all. Over the years, she had developed certain behavioral patterns including a strong stereotypic pacing habit (up to six hours a day). We were immediately faced with a challenge as curbing this behavioral problem was the highest priority to the staff.

We soon discovered that giving Kanook a sense of control over her environment was all that was needed to reduce this pacing habit. To do this we offered Kanook options as to where she could be (i.e. exhibit, air-conditioned dens, outdoor off-exhibit area, etc) giving her the opportunity to choose. When we had only two bears (Kanook and Ping Ping) we opened up the entire complex (exhibit and back of house areas) between 1100hrs and 1300hrs and the bears were free to explore, rest and play in any of these areas. This increased flexibility eliminated Kanook's stereotypic behavior.



Kanook busy with an iceblock toy

Kanook is very fond of her food enrichment and spends considerable time on exhibit foraging for her food. This is beneficial from a behavioral and educational standpoint, however we found that training was not as positive as her enrichment on exhibit and she would not reliably participate in training sessions. By changing the session time to early morning, using her main diet, she became focused with increased interest and effort. She would still receive her enrichment on exhibit during the day; we simply offered a better alternative to suit Kanook and staff.

LIYA & LYUTYIK

Liya and Lyutyik came to PBS November 2001. Both cubs had to adjust to a major environmental change as well as being separated from their mother for the first time. It was for these reasons that we initially focused on providing a comfortable, safe and stimulating environment for the cubs. We also ensured the staff were continually reinforcing to the cubs and concentrated on building a positive relationship for the first month. Hand feeding and (protected) interactions were included in this development leading onto basic training sessions.

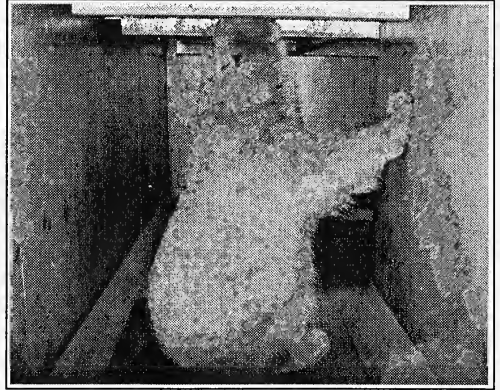
The cubs are only 12 months old so we keep the sessions short and reinforcing to maintain their interest, attention span and to avoid creating frustration.



Des with Liya

Both bears have different personalities and we adapt the training sessions accordingly. For instance, Liya is high energy and very quick (sometimes erratic). Rewarding her for calm behavior is our main focus, developing behaviors second.

Whereas Lyutyik is slower to learn and he is easily distracted so keeping approximations small and rewarding each step is the priority. The cubs have not been separated (with the exception of transportation to Sea World) so we must also include gradual separation into the training sessions.



Lyutyik learning target on weigh scales

Both cubs have a tendency to be competitive so we must ensure we finish the sessions simultaneously to avoid aggression. By knowing what we want to achieve and communicating before the training sessions we avoid confusion and are making good progression with both cubs.

In addition to these individual challenges, we needed to be flexible with session times and adapt to various routines and requirements, such as:

- bears being on display for public viewing
- bear sleeping patterns are not disturbed
- main diet (daily food intake) is maintained according to each bears' needs
- bears are available for special public relations ... media events

After some trial and error, we had "adapted and overcome" the obstacles presented to us and incorporated a regular training regime for all bears which suits the animals and all parties involved with Polar Bear Shores management.

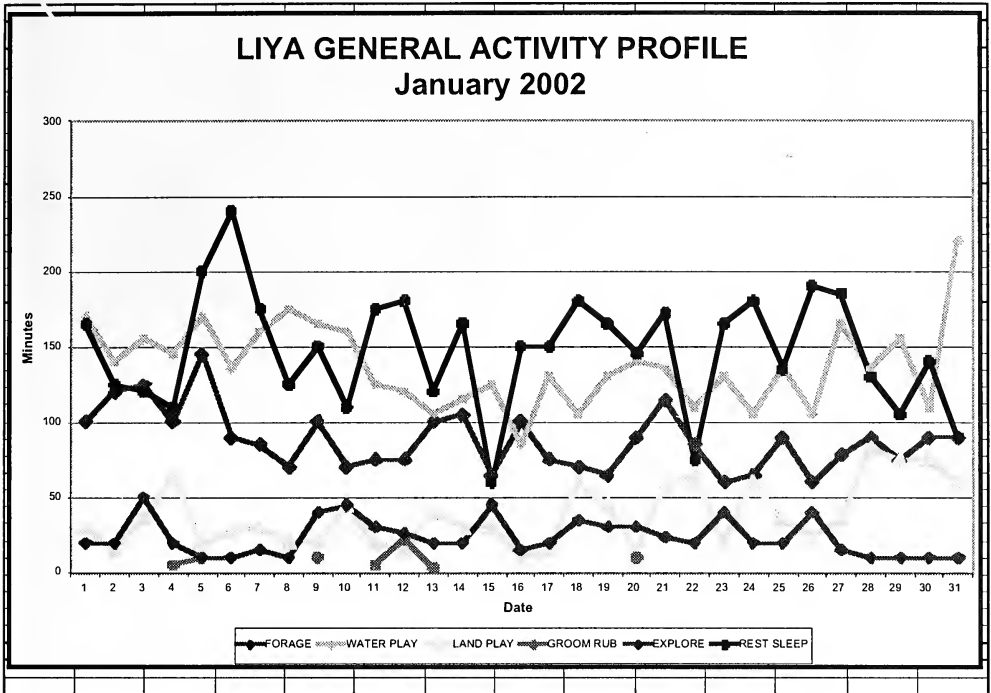
BEHAVIORAL PROFILES

In addition to the innovative approach adopted by PBS to manage the animals, we developed behavioral profiles that reflect the bears general activity and behavioural patterns. Daily husbandry logs are used to record the bears' behavior at different times throughout the day, whether on exhibit or off display. We looked at general bear behaviors (including stereotypes) to gather appropriate information. The information recorded includes:

- **Behavior** – forage, groom, swim, play, rest, nesting, investigating, walking, other
- **Interaction** – land or water, play, mating, soliciting, mouthing, vocalizing, aggression, other
- **Repetitive Motion** – pacing, set walking pattern, rock/sway, other

This data (and time engaged in each behavior) is collected daily and recorded on a monthly profile sheet with an accompanying graph to illustrate findings. These monthly profiles clearly reflect what types of activity the bears engage in, for what duration, if there are any behavioral changes and what possibly triggered these changes. This information has proven extremely valuable when monitoring individual bear behavior and when attempting to curb any aberrant/abnormal activity. We can also use these profiles to show seasonal changes in behavior, possible breeding patterns and many other miscellaneous information as it is required.

Below is an example of a graph from Liya's profiles. This reflects her general activity for one month (the month of January 2002).



CONCLUSION - BUT REALLY IT'S JUST THE BEGINNING...

To date we have incorporated a successful enrichment plan for all of our bears, including a progressive conditioning program that compliments the overall management of the animals and Polar Bear Shores. We believe it is successful because we have been able to curb and reduce stereotypic behavior, provide an ever-changing and stimulating environment which sees the polar bears engage in investigatory and foraging behaviors, as well as create a training program which enables us to maintain healthy (physically and psychologically) animals. All this, without any of the staff going prematurely grey! - with the exception of Des :)

We recognise that we are the “new kids on the block” when it comes to managing polar bears in captivity and we have learned incredible amounts from these bears and our experiences over the last 18 months. We hope to continue to learn, grow and be able to share our findings with other institutions, to build a better future for polar bears and for the conservation and preservation of these remarkable marine mammals.



Polar Bear Team (from left) Sharon Holden, Grant Amer, Kerrie Haynes-Lovell and Des Spittall with Ping Ping during his root canal surgery June 2001.

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(This article is reprinted with permission from Thylacinus, the quarterly publication of the Australasian Society of Zoo Keeping, Vol. 26, No. 2, 2002. This paper was presented at the ASZK Zoo Keeping Conference in March 2002 and was selected as recipient of the best paper award. We thank author Sharon Holden for her assistance in electronic transmission of the manuscript. Ed.)

Photos for this article taken by the author and Des Spittall, both members of the Polar Bear Shores Team; Marine Sciences Director Trevor Long; and personnel from the Sea World Australia Education Department.

Orange County Chapter AAZK

It is a clear, crisp day along the Wasatch Front as I relate to you all the news of this past year for the Utah Chapter of AAZK.

The balls thundered down the hardwood and the cash flowed into the coffers at this past year's Bowling for Rhinos. We raised \$9200.00, and our very own Bethany Lutz was the second most successful fundraiser in the nation. Congrats, Bethany!

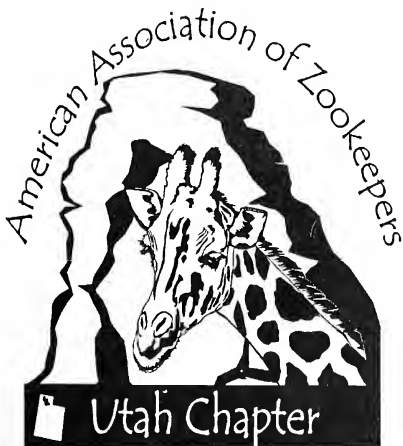
Thankfully, the sun shone down on our Labor Day event - Cheetah Cha-cha. Six different bands, along with story-telling and cheetah-related games, entertained visitors while we raised over \$950.00 for the Cheetah Conservation Fund in Kenya.

In October we divided up the remaining monies we had raised through a variety of projects. The Great Salt Lake Audubon Society received \$500.00; \$1000.00 went to the Wildlands Project; and \$750.00 each went to the Tortoise Trust Foundation and the International Snow Leopard Trust.

Finally, I would like to thank our 2002 officers for a tremendous job and announce our new officers for 2003:

President.....Bethany Lutz
Vice President.....Jill Cox
Secretary.....Richie Oliver
Treasurer.....Amanda Ista
Liaison.....Elizabeth Gruhlke

---Richie Oliver, 2002 Liaison



Chapter News Notes



Wildlife Safari Chapter of AAZK

This is our Chapter's first ever logo. It was designed by Chapter member Cassiy Olivares who works in the Elephant Department at Wildlife Safari. The logo was adopted on 10 December 2002.

The animals represent organizations that we, as an AAZK Chapter, have financially supported: Cheetah - Cheetah Conservation Fund; Rhino - Bowling for Rhinos; Mikumi (elephant), and Wildlife Safari (giraffe are one of our popular animals).

--Brooke Boqua, Secretary

Knoxville Zoo AAZK Chapter

New officers for 2003 are:

President.....David Backus
Vice President.....Roz Gorzman
Secretary.....Stephanie White
Treasurer.....Kelly Creswell
Membership/
Events Coordinator.....Jessica Clowers

Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



USFWS Grants Fund Wetlands Conservation Projects in 15 States

The U.S. Fish and Wildlife Service will award more than \$15.7 million in grants to 15 states to conserve, restore and protect coastal wetlands. States awarded grants for fiscal year 2003 under the National Coastal Wetlands Conservation Grant Program are Alabama, Alaska, California, Connecticut, Florida, Hawaii, Maryland, Massachusetts, New Jersey, New York, Ohio, Oregon, Texas, Virginia and Washington State.

The grants, which will help fund 21 projects, will be awarded through the National Coastal Wetlands Conservation Grant program and will be supplemented by \$33 million from state and private partners. The Service makes yearly matching grants to coastal states and U.S. territories for projects involving the acquisition, restoration or enhancement of coastal wetlands. Projects are administered for long-term conservation benefits to wildlife and habitat.

“Our state and private partners are key to protecting this nation’s natural heritage for future generations to enjoy,” said Service Director Steve Williams. “Through cooperative projects such as those funded by Coastal Wetlands Conservation Grants, we can help provide habitat for hundreds of species, and in many cases, public use opportunities as well.” Partners in this year’s Coastal Wetlands Conservation Grants projects include state natural resources agencies, land trusts, universities, several timber companies, private landowners, and conservation groups such as Ducks Unlimited and The Nature Conservancy.

To date, the Service has awarded more than \$120 million in grants to 25 states and one U.S. territory under the National Coastal Wetlands Conservation Grant Program. When the 2003 grants projects are complete, they will have protected and/or restored more than 17,000 acres; nearly 150,000 acres will have been protected or restored since the wetlands grant program began in 1990.

National Coastal Wetlands Conservation grants are awarded through a competitive process. The program is one of three conservation efforts funded by the 1990 Coastal Wetlands Planning, Protection and Restoration Act. Funding for the program is generated from excise taxes on fishing equipment and motorboat and small engine fuels. These taxes are deposited into the Sport Fish Restoration Account of the Aquatic Resources Trust Fund (commonly called Wallop-Breaux after its Congressional sponsors).

Descriptions of the 2003 National Coastal Wetlands Conservation Grant projects follow.

Alabama: Mobile-Tensaw Delta Wetlands. Alabama’s Department of Conservation and Natural Resources, with assistance from several other state agencies, including the State Lands Division and the Department of Environmental Management, will acquire 3,160 acres in Mobile County. This acquisition will preserve a variety of coastal habitats including maritime forest, salt marsh, shrub scrub, bay forests and wet pine savanna. Total cost: \$ 3,566,000.

Alaska: Afognak Coastal Protection. Alaska’s Department of Natural Resources will acquire 5,000 acres on the north coast of Afognak Island in Perenoa Bay, linking protected lands to form a 100-mile stretch of publicly owned coastal habitat. Total cost: \$ 7,210,000.

Gustavus Land Legacy: Phase One. Alaska’s Department of Fish and Game will acquire 1,072 acres on the Gustavus Flats near the Dude Creek Habitat Area and Glacier Bay National Park, permanently protecting spawning and rearing habitat for coho, chum and pink salmon and providing for continued hunting, fishing and recreational use. Total cost: \$1,276,800.

Herbert River Wetlands Protection Project. Alaska’s Department of Natural Resources will purchase 148 acres of land adjacent to the Herbert River, 30 miles north of Juneau. Protection of this coastal

wetland complex will benefit numerous fish species, migratory and coastal birds, and the threatened Steller sea lion. Total cost: \$850,000.

Palmer Hay Flats/Cope-Benson Acquisition. The Alaska Department of Fish and Game will acquire 240 acres for the Palmer Hay Flats State Game Refuge. Acquisition of these in-holdings will protect sensitive coastal wetlands and fish streams, as well as facilitating public access to these lands. Total cost: \$150,000.

California: **Stornetta Brothers Coastal Ranch.** The California State Coastal Conservancy, working with the Wildlife Conservation Board and the California Department of Fish and Game, will protect about 1,800 acres near Point Arena in Mendocino County through a combination of acquisitions and conservation easements. The protected area will include 22 miles of Pacific Ocean coastline, a seven-acre offshore island, a two-mile stretch of the Garcia River, a seabird rookery and several rare coastal habitats. Total cost: \$7,899,500.

Connecticut: **Lynde Point Marsh Restoration.** The Department of Environmental Protection will restore 10 acres of tidal wetlands on a coastal barrier in the lower Connecticut River, which is designated under the Ramsar Convention as wetlands of international importance. Restoration will include removal of invasive plants. Total cost: \$221,000.

Florida: **McIlvane Marsh Acquisition.** Florida's Department of Environmental Protection, in cooperation with the Florida Division of State Lands, will purchase 1,000 acres around McIlvane Marsh in Collier County to be included in the Rookery Bay National Estuarine Reserve. The project will benefit a variety of wading birds, important recreational fisheries, and several federally listed species, including the largest population of the American crocodile. Total cost: \$1,450,000.

Hawaii: **Waihe'e Coastal Dunes and Wetlands Preserve Acquisition.** Hawaii's Department of Natural Resources will acquire 249 acres in Maui County, protecting coastal and spring-fed wetlands, dunes, riparian habitat, and 12 miles of marine shoreline. In recent years at least 6 endangered species — the Hawaiian stilt, the Hawaiian coot, two endangered plants and two endangered insects have been reported on-site. Total cost: \$4,630,500.

Maryland: **Nanticoke River and Marshyhope Creek Wetlands.** Maryland's Department of Natural Resources will acquire a perpetual conservation easement on 1,351 acres at the confluence of the Nanticoke River and Marshyhope Creek in Dorchester County. This easement will protect 32 miles of river shoreline, several active bald eagle nests and spawning areas for a number of fish species. Total cost: \$969,000.

Massachusetts: **Storey Property, Acquisition of Conservation Easements.** The Massachusetts Department of Environmental Management will purchase a conservation easement on a 126-acre parcel in Essex County. These lands provide valuable habitat for 33 species identified by the Fish and Wildlife Service's Gulf of Maine Coastal Program as declining nationally or regionally. Total cost: \$653,000.

New Jersey: **Cape May Peninsula.** The State of New Jersey Department of Environmental Protection will purchase 112 acres in the lower Cape May peninsula, one of the most important migratory bird stopover areas in the world. Geese, herons and egrets are among the dozens of species that use the area during migration. Total cost: \$1,181,000.

New York: **Peconic Estuary Critical Wetlands Acquisition — Pipes Cove.** New York State's Department of Environmental Conservation will acquire approximately 40 acres in the Pipes Cove Focus Area in Suffolk County. This acquisition will protect maritime forest and habitat for a variety of fish, neotropical migratory songbirds and endangered or threatened species, including the piping plover. It is part of a larger landscape protection effort for the Peconic Estuary. The Town of Southold will also acquire 100 acres as part of this protection effort. Total cost: \$6,508,500.

Ohio: **Pickerel Creek Wildlife Area Wetland Acquisition and Restoration.** Ohio's Department of Natural Resources will acquire and restore approximately 280 acres of Lake Erie's coastal wetlands in Sandusky County. This is an important area for migrating songbirds and the most important staging area for black ducks in North America. Total cost: \$1,660,000.

Oregon: Circle Creek Wetlands Acquisition. The Oregon Watershed Enhancement Board will acquire 350 acres on Circle Creek along the Necanicum River in Clatsop County. This acquisition will expand the existing block of protected habitats to include key portions of the lower river floodplain, creating a linked network of conservation lands. It will also protect one of the largest remaining coastal spruce swamps on the Oregon coast, and provide improved habitat for coho and other at-risk salmon species, as well as red-legged frogs and numerous migratory and at-risk bird species. Total cost: \$1,100,000.

Yaquina Bay Estuarine Marsh Acquisition. The Oregon Watershed Enhancement Board will acquire and protect 624 acres of estuarine marsh in Yaquina Bay in Lincoln County. These acquisitions will provide important habitat for endangered and threatened species such as coho salmon, brown pelicans, bald eagles and marbled murrelets, and for candidate species, sea-run cutthroat and steelhead trout. They will also provide habitat for state-designated sensitive species such as chum salmon and pacific lamprey. The marshes in Yaquina Bay support abundant waterfowl populations. Total cost: \$1,403,868.

Texas: Guadalupe Delta Wildlife Management Area. Texas Parks and Wildlife will acquire 1,000 acres of coastal marsh and prairie habitat adjacent to the Guadalupe Delta Wildlife Management Area in Refugio County. The acquisition will benefit the existing wildlife area and provide public use opportunities, as well. Total cost: \$480,000.

Virginia: Protection of Mutton Hunk Fen Conservation Site. Virginia's Department of Conservation and Recreation will purchase 377 acres and obtain conservation easements on 352 acres along Mutton Hunk Branch, Whites Creek and Gargathy Bay on Virginia's eastern shore in Accomack County. A globally rare plant community, a sea level fen, will be protected. Total cost: \$2,540,944.

Washington: Dungeness-Meadowbrook Coastal Wetlands and Estuary Habitat. The Washington Department of Fish and Wildlife, in cooperation with the Salmon Recovery Funding Board, will protect—through a combination of acquisitions and easements—140 acres in the Dungeness and Meadowbrook Creek Estuary. A variety of salmon species will benefit from this project. Total cost: \$1,424,633.

English Boom-Leaque Island Acquisition and Restoration. The Department of Fish and Wildlife, in cooperation with Washington State's Salmon Recovery Fund, will purchase and restore the tidal habitat on about 150 acres of diked tidal slough, salt marsh and freshwater wetlands. The project would be in the Stillaguamish River Estuary and Skagit Bay in Island County, an area that supports large concentrations of migratory and wintering raptors, waterfowl, shorebirds and songbirds. Total cost: \$1,436,900.

Leadbetter Point Conservation Project. The Washington State Parks and Recreation Commission will acquire and restore 137 acres in Pacific County, linking a network of more than 300 acres of conservation lands in Willapa Bay and providing enhanced habitat for threatened and endangered species. Partners: Columbia Land Trust, the Trumpeter Swan Society, the Washington Native Plants Society and the Service's North American Wetlands Conservation Act Grant Program. Total cost: \$1,903,360. *Source: USFWS Press Release 25 November 2002*

Recent Additions to the Endangered Species/Habitat List

The following species and habitats have recently been designated as endangered by the Department of the Interior. Animals: Carson wandering skipper butterfly (California and Nevada populations); California tiger salamander (California populations); Southern California mountain yellow legged frog (California populations); Chiricahua leopard frog (Arizona, New Mexico, and northern Mexico populations); Buena Vista Lake ornate shrew (California populations). Plants: San Diego ambrosia (California populations); Showy stickseed (Washington populations); Golden sedge (North Carolina populations).

Habitat: 32,295 acres in California designated for the endangered San Bernadino kangaroo rat; 19,386 acres on the central California coast for the endangered Monterey, robust and Scott's Valley spineflowers; 273 square miles in California for endangered Quino checkerspot butterfly; endangered southern California steelhead trout protection expanded all the way to the Mexican border by the National Marine Fisheries Service (protected habitat previously excluded all portions of the species' range south of Malibu Creek). *Source: Endangered Earth, Newsletter of the Center for Biological Diversity, November 2002.*

Captive Wildlife Safety Act Pending in Congress

An estimated 5,000 tigers are kept as pets in homes throughout the United States. Animal dealers advertise tiger and lion cubs for sale over the Internet for \$2,000 each. While no central registry of wild pets is kept, the Humane Society of America estimates that more than 10,000 exotic animals - including tigers, bears, lions, leopards, cheetahs, and cougars - are kept as pets in this country.

Currently, 19 states have laws that restrict or ban private possession of big cats and bears. They are: Alaska, California, Colorado, Connecticut, Florida, Georgia, Hawaii, Illinois, Massachusetts, Maryland, Michigan, Nebraska, New Hampshire, New Mexico, Tennessee, Utah, Vermont, Virginia, and Wyoming. Now, in an effort to control this problem, Congressional lawmakers have introduced legislation that would at least put a damper on the exotic pet trade.

The Captive Wildlife Safety Act, sponsored by Congressman George Miller (D-CA) and Senators Jim Jeffords (I-VT) and Bob Smith (R-NH) would ban the interstate transport of the six types of animals listed above. A dealer in a state where wild pets are legal could still sell the animals within that state. "People see a lion cub and want to take it home. But the cub grows up and turns into a big problem," Jeffords said. "I think a lot of state legislatures have failed to do anything about it because they figure that anyone stupid enough to have a tiger for a pet gets what they deserve. But we need to protect the owner's children or the neighbor who wanders into the yard unknowingly, reaches in to pet the lion and loses an arm. Additionally, some of them are mistreated, kept in awful conditions or even slaughtered." The bill is supported by the Humane Society, the American Veterinary Medical Association, and the AZA. *Source: Sacramento Bee Newspaper 1 December 2002*

Laws Failing Endangered Animals

U.S. laws and regulations that are supposed to protect exotic endangered species such as tigers are "filled with flaws that make it easy for animals to fall prey to exploitive black marketeers" reports the *San Francisco Gate/AP*. According to the USFWS, "Most of the people who provided big cats that were killed for their hides and meats in an illegal trafficking ring recently cracked by investigators were licensed by the U.S. Dept. of Agriculture." Experts contend that the standards for obtaining a USDA dealer or exhibitor license are "so minimal, they're worthless" while the USFWS can only enforce laws against selling endangered species across state lines. Alan Green, author of a book on the black-market trade of endangered and exotic species, "Animal Underworld: Inside America's Black Market for Rare and Exotic Species" says the "whole system is set up in some weird way, almost no one has responsibility." *Source: GREENlines Issue #1764 12-12-02*

Sumatran Tigers Face Extinction

With an average of 33 killed each year, experts say that the number of Sumatran tigers remaining in the wild, estimated at 400 in 1992, is "sure to be lower now" reports Reuters. Conservationists say "shrinking habitat because of rapid population growth, forests being cleared for plantations, and illegal hunting are the reasons for the sharp decline." The Balinese tiger became extinct in the early 20th century and the "Javan tiger has also been officially declared extinct, although several park rangers have reported fairly recent sightings, unconfirmed by photographic or other evidence." *Source: GREENlines Issue #1763 12-11-02*

Canada Adds to Endangered List

At its November meeting, the federal Committee on the Status of Endangered Wildlife in Canada added 15 species to the Species at Risk list and upgraded seven species to a higher category of risk says Environmental News Service. The Species at Risk list now contains 141 plants and animals classified as "endangered," 99 are "threatened" and 142 "species of special concern." In Canada, 21 species have been declared extirpated and 12 species extinct, including the latest designation Macoun's shinning moss. *Source: GREENlines Issue # 1765 12-13-02*

Bear Sanctuary Offers Hope

Conservationists relocated 20 rare Asiatic black bears to a new sanctuary that is part of efforts in China to stop the cruelly inhumane practice of "bear farming," which involves "surgically implanting tubes to drain bile from the gallbladders of captive animals" reports MSNBC News. China lists the Asiatic black bear as an endangered species and in the 1990s actually "encouraged" the bear farms as a "way to stop hunting." The sanctuary is the first step in meeting the "final objective of terminating bear farming in China" and eventually returning "500 animals to the wild." *Source: GREENlines Issue #1770 12-20-02*

Riddle's Elephant and Wildlife Sanctuary Tenth Annual International School for Elephant Management

The course will target two experience levels:

Professionals (persons having worked full time for at least one year with elephants)

25 April – 8 May 2003

Non-professionals (persons interested in, or desiring to work with elephants)

26 September – 9 October 2003

Participants will learn elephant care and husbandry, free and restricted-contact handling techniques and the interpretation of elephant behavior. The handling and training will be performed using the sanctuary's 12 elephants - male and female, African and Asian.

This unique course will be taught by the sanctuary staff, assisted by various guest speakers who are experts in fields as diverse as elephant anatomy, reproductive assessments, chemical communication, medical evaluations and behavior.

The school registration fee of US\$1800 which includes tuition, all meals, and modern dormitory lodging (2 persons per room) at Riddle's Elephant and Wildlife Sanctuary. Transportation between the Little Rock Airport and the Sanctuary can be arranged.

Early registration is recommended, as the limited spaces will be filled on a first-come, first-served basis. Applications received after the School Term is filled will be put on a waiting list and will be notified if space becomes available due to cancellation. Applicants need to be 18 years of age and older. A \$200 deposit is required and will be applied toward the tuition cost.

To promote the careers of professional elephant handlers, the *International Elephant Foundation* will provide up to US\$2000 for tuition and travel expenses to the Professional session of 25 April – 8 May 2003. Candidates must currently handle elephants and have at least one year of experience. Candidates must submit a resumé and letters of recommendation and support from their institution Director/CEO/Owner and their immediate supervisor who has knowledge of their elephant handling skill and interest. Each candidate must also state, in writing, why they wish to attend the training school and what they hope to gain from the experience. Scholarship selection will be based on the candidate's elephant interest, knowledge, experience, need, and the ultimate benefit to captive elephant populations. **The application deadline is 21 February 2003**, and it must be sent to the International Elephant Foundation, PO Box 366, Azle, TX 76098-0366. For scholarship information, contact Deborah Olson at Dolson@indyzoo.com

For more School information, or a registration packet, please contact the sanctuary office:

Riddle's Elephant and Wildlife Sanctuary

P.O. Box 715

Greenbrier AR 72058

USA

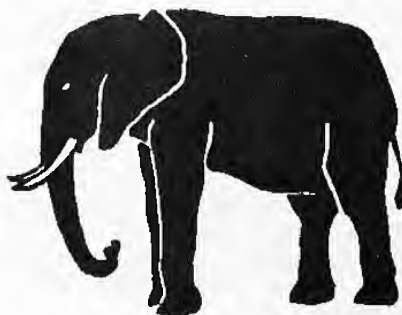
501-589-3291 phone

501-589-2248 fax

elephantsanctuary@alltel.net

www.elephantsanctuary.org <

<http://www.elephantsanctuary.org>>



Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 10th of each month to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive their AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our Fax is (785) 273-1980; e-mail: akfeditor@zk.kscoxnail.com< Listing may be sent as MS Word attachment. We are no longer located at the Topeka Zoo, so please note new address to avoid delays in processing.

Zookeeper/Guide...Four (4) seasonal: one (1) position beginning immediately through December 2003; one (1) position April-October 2003; two (2) positions May-October 2003. Duties include, but not limited to, giving lectures to the public on various mammals and reptiles, participating in the daily feeding, care, maintenance and enrichment of mammals and reptiles. Must be willing and able to do physical labor, requires good oral communication skills, strong audible voice, neat appearance, and must work well with co-workers. Hours fluctuate according to the season. Must be willing to work weekends and holidays May-October, six days per week. Off-season, five days per week. Send resumé to: Soco Gardens Zoo, Jim Miller, 89 Evans Cove Rd., Maggie Valley, NC 28751. Please include cover letter and letters of recommendation from immediate supervisors, preferably zoo-related.

Veterinary Technician...The International Crane Foundation invites applications for the Veterinary Technician position. Responsibilities include providing medical care for the captive flock of 120 cranes under supervision of the veterinarian. The candidate will also participate in veterinary support for endangered species reintroductions and international programs. Candidates must have a veterinary technical degree and certificate, and preferably experience in zoo, wildlife or avian health care and husbandry, and be competent in anesthesia/monitoring, radiology, animal restraint, laboratory procedures, MedARKS data entry, and inventory management. Competitive salary commensurate with experience. Applicants should submit a letter of intent, curriculum vitae, and the names of three references to Susan Finn, International Crane Foundation, E-11376 Shady Lane Road, P.O. Box 447, Baraboo, WI 53913-0447; fax 608-356-9465, email sfinn@savingcranes.org. Applicant review will continue until the position is filled. ICF is an equal opportunity employer.

Animal Care Supervisor/Registrar...at the Tallahassee Museum. Job responsibilities will include overseeing and participating in the daily care of a collection of native Florida wildlife in natural habitat type exhibits, a teaching collection used for education programs and a collection of domestic livestock on a 1880s farmstead. Individual is also responsible for transcribing the collection's daily records, managing ARKS 4 and MEDARKS. Exhibit maintenance and light construction skills are a plus. Requirements: 3 to 4 years paid experience preferably in an accredited zoo and a BS/BA degree in biology or related field, or an equivalent combination thereof. Send cover letter, resume and three (3) professional references to: Animal Care Supervisor Search Committee, Tallahassee Museum, 3945 Museum Drive, Tallahassee, FL 32310; e-mail: tmhnszoo@nettally.com≤ No phone calls, please.

Herpetological Keeper...Riverbanks Zoo & Garden. To work as a member of Riverbank's Aquarium and Reptile Complex (ARC) team. Riverbanks maintains more than 500 amphibians and reptiles representing 100 different taxa. We are active in several international, national, and local conservation programs. Under general supervision, the Herpetological Keeper is responsible for the proper care of reptiles, amphibians, fishes, and invertebrates. Duties include: feeding animals; cleaning, maintaining, designing, and constructing exhibits; monitoring and maintaining life support and lighting systems; monitoring animal health and behavior and using proper enrichment and operant conditioning principles; maintaining detailed behavioral, reproductive, and medical records; taking proper measures to insure the security of animal enclosures; conducting tours of the Aquarium and Reptile Complex and presenting educational programs for school groups, college-level classes, and Society members. Participation in conservation/research is encouraged. This position reports to the Senior Herpetological Keeper. The salary for this position is \$10.14/hour plus a great benefits plan that includes participation in the South Carolina Retirement System. To apply please send your letter of intent and resumé to: Human Resources, Riverbanks Zoo & Garden, PO Box 1060, Columbia, SC 29202-1060. Or you can apply via fax at 803/253-6381 or email at jobs@riverbanks.org. For more information about Riverbanks and our job opportunities please visit www.riverbanks.org.

Keeper/Interpreter...non-profit, educational live animal center of a natural history museum seeking dedicated, professional individual for permanent position. Requires Bachelor's degree and two (2) years experience with exotic animals excluding pets. Good communication and public speaking/presentation skills a must. This position is primarily responsible for reptiles but will also work with other staff to ensure the care and well being of the entire collection of over 100 small mammals, birds, reptiles, amphibians and inverts. Responsibilities include daily husbandry, record keeping, training and supervising volunteers, providing medical and special treatment for animals, and performing daily educational programs for the general public. This is a 35 hour work week, including some holidays. Salary range is \$24,000-28,000 plus benefits. Send letter and resumé to: J. Genovesi, Director Living Exhibits, The Academy of Natural Sciences, 1900 Ben Frank Pkwy, Philadelphia, PA 19103-1195.

Service Opportunities or Internships... Interested in learning more about big cats and a career path? Consider a service opportunity at TCWR. Two (2) positions currently available at Tiger Creek Wildlife Refuge, Tyler, TX. Interns are utilized for animal care positions through a qualification system. Commencement date: Open. Duration: Month by Month. We provide: Room & Board, Materials and Curriculum, Indoctrination and Safety Training, Opportunity for full-time paid animal keeper positions (after training). See additional information and application at our website - www.tigercreek.org<

Aviculture Interns... for the Hawaii Endangered Bird Conservation Program at the Keauhou Bird Conservation Center (KBCC) on the Big Island of Hawaii and the Maui Bird Conservation Center (MBCC) on the island of Maui. Daily tasks include husbandry duties such as: diet preparation, aviary and facility maintenance, behavioral observations of breeding birds, grounds keeping, predator control. Applicant must be able to live with several roommates in a remote area and should show enthusiasm for work with captive endangered Hawaiian birds. Applicant must have a valid driver's license and health insurance. Internships last for a 3-6 month period. Interns receive \$20/day stipend plus housing. For more information on internships at **KBCC**, please send a resumé, cover letter, and the names and contacts of three (3) references to: Tracey Goltz, P.O. Box 39, Volcano, HI 96785 or fax: 808-985-7034. **OR**, for more information on internships at **MBCC**, please send this information to: Mary Schwartz, 2375 Olinda Road, Makawao, HI 96768 or fax: 808-572-3574.

Avian Internship... Become familiar with daily activities involving our colony of African penguins, exotic birds, and reptile collection. Duties include food preparation, exhibit maintenance, and creation of enrichment devices. Candidates should be comfortable with public speaking and have course work in biology/psychology. Must be able to work outdoors and lift 50 pounds. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid. Interested candidates should submit a cover letter and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Kyla Fox, One Riverside Drive, Camden, NJ 08103.

Marine Mammal Internship... Learn daily activities involving animal care and training with our Seal Team. Duties include food preparation, exhibit cleaning, creating enrichment devices and observing training. Candidates should be comfortable with public speaking, have course work in biology/psychology, prior animal experience, be able to work outdoors, and lift 50lbs. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid. Interested candidates should submit a cover letter and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Nicole Begley, One Riverside Drive, Camden, NJ 08103.

Internship Opportunities - National Aquarium in Baltimore

To apply for any of the following internship positions go online at www.aqua.org/education/internships to obtain an application form. A complete application includes contact information, answers to brief statements listed, and a copy of college transcript. All interns must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid. Complete applications should be sent to: National Aquarium at Baltimore-Internships, Pier 3/501 East Pratt St., Baltimore, MD 21202. Application Deadline: ongoing - 1 April 2003 for Summer and Fall 2003 terms; 1 November 2003 for January and Spring terms of 2004. For further information contact the National Aquarium in Baltimore's Internship coordinator at intern@aqua.org or call (410) 576-3888.

Aquarist Intern

The selected candidate will assist the Aquarium aquarist staff with daily care of the Aquarium's invertebrates and fish. *Essential Functions:* Assist with tank maintenance and cleaning; Prepare daily diets and perform daily feedings; Assist in the maintenance of back-up areas; Conduct precise record keeping; Perform special projects to be determined by the aquarist staff. *Requirements:* College juniors or seniors enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field. Must be able to lift 50 lbs, climb up a 6' ladder, and be able to squeeze across a 15' long x 12" wide platform.

Aviculture Intern

The selected candidate will assist the Aquarium aviculture staff with daily husbandry activities in the South American Rainforest exhibit. *Essential Functions:* Assist with and perform diet preparation and distribution; Conduct animal observations; Assist in the cleaning of holding areas, kitchen, and food prep areas; Provide enrichment to the aviculture collection; Perform special projects as determined by the aviculture staff. *Requirements:* Interest in working with birds. Enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science, or a related field.

Herpetology Intern

Duties: Tend the "Hidden Life" exhibits (large wall terrariums where small, neotropical lizards, frogs, snakes and invertebrates are on public display); Mist and clean the off-exhibit colony of small arboreal lizards; Mist, clean and otherwise help tend the large, off-exhibit collection of neotropical frogs; Prepare diets for and feed the on and off-exhibit iguanas and tortoises; Tend the locust (live food) colony, orb-weaving spiders and colonies of non-venomous exotic arthropods (wood and hissing roaches, millipedes and walking sticks); Assist in the maintenance of the live food cultures (fruit flies, springtails, crickets, rats, mice); Conduct and record animal observations; Perform special projects as determined by the herpetology staff. *Requirements:* Enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science or a related field. Must be comfortable working with frogs, lizards, rodents and terrestrial arthropods.

Horticulture Intern The selected candidate will assist the Aquarium horticulture staff with daily activities. *Essential Functions:* Assist with care of plants in the Rain Forest exhibits; Conduct plant maintenance, fertilization, propagation, and transplantation; Assist in display development; Perform special projects as determined by the horticulture staff. *Requirements:* Enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field.

Marine Animal Rescue Program (MARP) Intern

The selected candidate will aid in all aspects of marine animals rescue program (MARP) operations, which involves the rescue, rehabilitation, and release of stranded marine mammals and sea turtles and implementing outreach efforts of the Aquarium's Ocean Health Initiative. The selected candidate is also responsible for technical and clerical assistance for the Conservation Department staff as

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necessary. *Essential Functions:* Animal Care – participating in rescue and release trips, daily feeding, medical treatments, facility maintenance including cleaning and water changes, behavioral observations, and record keeping; Outreach – learning to interpret the MARP artifacts and conservation messages and participation in seasonal outreach and public education programs at the Aquarium and off site; Other duties as assigned – field work, etc. *Requirements:* College junior or senior majoring in environmental science or related field with course work in biology and ecology. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work.

Marine Mammal Trainer Intern

The selected candidate is responsible for providing support to the marine mammal training staff. This internship's primary purpose is to teach the intern training theory. ***There is limited hands-on animal contact during the internship.*** *Essential Functions:* Prepares daily animal diets and dispenses vitamins as instructed; Responsible for the cleanliness and safety of all animal back-up areas; Assists in training, husbandry, and medical sessions; Participates in pre-show and pre-session preparations; Periodically participates in sessions involving swimming during enrichment and play sessions – no animals involved; Other duties as assigned. *Requirements:* College junior or senior majoring in life science or related field. Must have a basic understanding of marine mammal natural history. Must have good swimming skills. Must work well as a team member. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work.

Water Quality Lab Intern

The selected candidate will assist in the water quality testing of all fish and mammal systems throughout the aquarium. Duties include testing water for salinity, pH, ammonia, nitrite, alkalinity, and copper according to lab procedures, and recording neat, accurate data. The selected candidate will work closely with the Lab Technicians and the Animal Husbandry staff. *Requirements:* College junior or senior with general biology and chemistry work. Strong math skills and computer proficiency preferred. Must be available to work mornings.

Positions posted with AAZK, Inc. may also be found on our website at www.aazk.org

Also, you may want to check out the AZA Member Institution job listings at <http://www.aza.org>

2003 AZA Regional Conferences

Eastern Regional - 26-29 March 2003. To be hosted by the Riverbanks Zoo & Garden, Columbia, SC.

Central Regional - 30 April - 3 May, 2003. To be hosted by the Milwaukee County Zoo, Milwaukee, WI.

Western Regional - 14-17 May 2003. To be hosted by the Calgary Zoo, Calgary, Alberta, Canada.

AAZK Membership Application

check here if renewal []

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Full-time Keepers Only

\$35.00 Affiliate
Other staff & volunteers

\$35.00 Associate
*Those not connected with
an animal facility*

\$60 or up - Individuals
Contributing/Canada

\$100.00 or up
Institutional/Canada
*Organizations/Institutions
(requires Board approval)*

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Signature _____

Mail this application to: AAZK Administrative Offices, 3601 S.W. 29th, Suite 133 Topeka, KS 66614-2054. Make checks/money orders payable to AAZK, Inc. Must be in U. S. FUNDS ONLY. Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



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ANIMAL KEEPERS' **F O R U M**



**The Journal of the American
Association of Zoo Keepers, Inc.
MARCH 2003**

Managing Editor: Susan D. Chan • **Associate Editors** • Gretchen Ziegler, Sequoia Park Zoo & Kayla Grams, Lovell, WY • **Enrichment Options Coordinators:** Jan Roletto, Eureka, CA & Dawn Neptune, Utah's Hogle Zoo • **Legislative Outlook Column Coordinator:** Georgann B. Johnston, Sacramento, CA • **ABC's Column Coordinator:** Diana Guerrero, Big Bear Lake, CA • **Reactions Column Coordinator:** William K. Baker, Jr., Little Rock Zoo • **The Water Column Coordinators:** Dan Conklin and Kevin Shelton, The Florida Aquarium and Bruce Elkins, Indianapolis Zoo

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AAZK Executive Director: Ed Hansen, AAZK, Inc., Topeka KS
also serves as AAZK Liaison to the American Zoo & Aquarium Association (AZA)

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AAZK PUBLICATIONS - CONTINUING DATA COLLECTION

Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, Lake Odessa, MI

AAZK Enrichment Notebook - Lee Houts, Folsom City Zoo

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About the Cover.....

This month's cover features a Binturong (*Arctictis binturong*) drawn by Christine McKnight, a keeper at the Minnesota Zoo in Apple Valley, MN. The Minnesota Zoo's Tropics Trail is home to a pair of Binturongs. During the public hours one of the Zoo's Binturongs is exhibited with Malayan tapirs and Shelducks. The Binturong is a palm civet, a diverse group of cat-like mammals native to Southeast Asia. Civets eat small mammals and bugs as well as a wide variety of fruits. Binturongs, and other palm civets, are notorious banana thieves. Binturongs are nocturnal and solitary. They average 4-5 ft. in length, of which half is the tail, and weigh between 26-30 lbs. The young, which number two or three, are born in a hollow tree and will begin to hunt with their mother by the age of three months. A skillful climber, the Binturong uses its prehensile tail, which is very muscular, to grasp branches as it forages in the trees. The Minnesota Zoo's Binturong has used his prehensile tail and climbing skills to adventure beyond his exhibit on a few occasions. Thanks, Christine!

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Manuscripts submitted either on disk or electronically as attachments to an email should be submitted in Microsoft WORD. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than** 5.5" x 8.5" (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white or color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo. Photographs may be submitted electronically as either JPEG or TIFF file attachments.

Articles sent to Animal Keepers' Forum will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for AKF. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980; email is akfeditor@zk.kscoxmail.com<

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

Articles printed do not necessarily reflect the opinions of the AKF staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@zk.kscoxmail.com< You may reach Susan Chan and Animal Keepers' Forum at: akfeditor@zk.kscoxmail.com<

AAZK Website Address: www.aazk.org

BFR Website: <http://.bfr.aazk.org>

Scoops & Scuttlebutt



Shedd Aquarium Offers Iguana Expedition

Shedd Aquarium Andros Iguana Research Expedition - May 2 - May 11, 2003.

Join scientists from the John G. Shedd Aquarium in field research to help save the threatened Andros iguana (*Cyclura cychlura cychlura*). Almost nothing is known about this animal except that it faces severe threats from illegal hunting, predation by feral animals and habitat loss. Shedd researchers have been exploring Andros Island in the Bahamas for four years in search of the elusive iguana and located isolated populations suitable for life history studies. Participants will assist with iguana captures, measurement records, habitat assessments and radio telemetry. We also will visit the local people to discuss the plight of the iguana and raise awareness for the need to protect this endemic reptile. Andros Island is rugged and thought to be the largest tract of relatively unexplored land in the Western Hemisphere. This trip is for people with a sense of adventure and a desire to get involved in a conservation program that produces tangible results. We will stay aboard Shedd Aquarium's research vessel, the R/V Coral Reef II. Trip price is \$1,800, which includes accommodations, food, transfers from Miami International Airport and the Bahamas exit tax. For more information, please contact Sonja Tiegs at stiegs@sheddaquarium.org or call (312) 692-3191.

IUCN/SSC Tapir Specialist Group Establishes Registry

In 2001 the Tapir Specialist Group formed a committee focusing on the role of zoos in tapir conservation and welfare. The committee has a number of goals and one of these is to develop and maintain a register of people who have expertise in the husbandry and management of all tapir species. To initiate this register we are presently asking interested persons to contact the coordinator stating their interest and experience in tapirs. Their names will then be placed on the register and they will be contacted should the need arise. We are especially interested in hearing from keepers who work with tapirs in their range countries so if you know of such a person then please do ask them to contact me. For more information or to register, please write to: sian_s_waters@hotmail.com

We are also looking for zoo educators who have an interest in tapirs for a sub-committee that will focus on that area of tapir conservation in zoos. Please contact me at the above address if you are interested in finding out more about this sub-committee. *submitted by* Siân S. Waters, TSG Zoo Coordinator.

SOS Rhino Seeks Volunteers Needed

SOS RHINO is looking for volunteers interested in helping us in our efforts to save the Sumatran rhinoceros. Our Borneo Team is studying the demographics of the remaining animals in Tabin Wildlife Reserve to determine when patrol units, habitat protection, or translocation may play a role in the rhinos' survival. For information see their website at <http://www.sosrhino.org/programs/volunteer.php> Read about a Summer 2002 volunteer experience with SOS Rhino's Borneo Team at <http://www.sosrhino.org/news/gluckman.php>

PJC Zoo Animal Technology Program / UWF Zoo Science

The Pensacola Junior College zoo animal technology program is now accepting applications for entry in August 2003. This is a two year associate of science degree program offered as a cooperative effort of PJC and The ZOO in Gulf Breeze FL. Our program includes general education, a comprehensive series of academic courses in animal biology, specialized zoo topic courses, and practical animal care, medical husbandry, and exhibit repairs skills courses. Transfer to a new Zoo Science B.S. program at University of West Florida (also in Pensacola) now available! Application packets may be obtained from the PJC biology department secretary at (850) 484-1168 or on the web at <http://www.pjc.edu/academics/departments/deptbio.asp> and further information is available by contacting Joyce Kaplan, PJC Zootech Director, at jkaplan@pjc.edu or (850) 484-1164.

AAZK Announces Availability of Granting Programs

The American Association of Zoo Keepers announces the availability of two granting opportunities:

The Conservation, Preservation and Restoration (CPR) Grant – This \$1,000.00 grant is designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member **MUST** have an active role in the conservation effort submitted for consideration. The division of this grant between two projects is at the discretion of the CPR committee. Funds are made available only after a progress report and receipts have been submitted.

The Zoo Keeper Grants in Research – Two \$1,000.00 grants are funded annually to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator **MUST** be a full-time keeper and a member of AAZK, Inc. in good standing.

Deadline for application submission for either grant option is **1 June 2003**. Successful grant recipients will be announced at the AAZK National Conference in Fall 2003. The grant cycle runs from 01 January 2004 to 31 December 2004. For further information or an application see the AAZK Website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committees' Chair, jrsotter@iserv.net, 616-693-2680, Fax: 616-374-3263. Please specify which grant program you are interested in.

Bowling for Rhinos Facts and Figures --submitted by *Patty Pearthree, National BFR Chair*

The year 2002 was Bowling for Rhinos second best year ever with a total of \$154,456.76 raised. As of 13 January 2003, BFR has raised \$1,656.00 which brings the **overall total** to \$1,734,502.61!

Please turn in the information form (In January 2003 *AKF*) for your Chapter's BFR event as soon as possible so someone in your Chapter can have an opportunity to win the trip to Lewa Wildlife Conservancy in Kenya. You need to be an AAZK member in good standing and turn in your money to Patty Pearthree, 318 Montibello Dr., Cary, NC 27513 **by 1 September 2003** to be eligible to win the trip.

It is called Bowling for Rhinos, but we save habitat so we really save everything from orchids to elephants in some of the most unique ecosystems in the world. Remember, 100% of all funds go directly to conservation in the wild so every penny counts!

Bowling for Rhinos money has played a significant role in the survival of rhinos worldwide. Let's keep up the great work!

Oops - From the Editor

They say somedays are like that...I need to apologize to IOC Chair Jeannette Beranger for the "oops" that appeared in her piece about the International Congress on Zookeeping which ran on pages 49-51 of the February 2003 issue of *AKF*. At the time the material was submitted, a final price for registration for the IZC had not been set and I was awaiting information on this when I got that issue ready to go to the printers. I totally missed the fact that I had not included this and had instead placed a reminder to myself "AMOUNT HERE" in the text of her article. Well, that's how it appeared and likely was confusing to our readers. I spoke with Jeannette subsequent to this error and she told me the registration cost will be no more than \$450 and hopefully less, depending on how successful sponsorship fundraising efforts are among the IZC participating organizations. Check out their website at www.iczoo.org for the latest information.

Also, my apologies to the Utah Chapter for misidentifying their Chapter News Notes submission as being from Orange County AAZK. Sometimes I think I must have been at this job way too long...*Ed.*

AAZK Announces New Members

New Professional Members

Amy Ivins and Wendy Lenhart, **Philadelphia Zoo (PA)**; Olivia Landis, **Cohanzick Zoo (NJ)**; Deanna Fracul, **Oglebay's Good Zoo (WV)**; Sharon Kitchin, **The Brandywine Zoo (DE)**; Joy R. Gibson, **Salisbury Zoo (MD)**; Brooke Fancher, **Central Florida Zoo (FL)**; Denise M. Ciofani and Peggy Hoppe, **Birmingham Zoo (AL)**; Michael Frayer, **Milwaukee County Zoo (WI)**; Erin F. Galbraith, **International Exotic Feline Sanctuary (TX)**; Leslie A. Lurz, **Lincoln Park Zoo (IL)**; Alan Lamb, **Scoville Zoo (IL)**; Ethan Schniedermeier, Matt Schamberger and Christy Poelker, **St. Louis Zoo (MO)**; Laura Stroup and Julie Thien, **American National Fish and Wildlife Museum (MO)**; Charles Blair, **Lee Richardson Zoo (KS)**; Ann Reams, **Dallas Zoo (TX)**; Tammy Buhmester, **Houston Zoo (TX)**; Hector Moral, **The Aquarium at Moody Gardens (TX)**; Nicole L. King, **Denver Zoo (CO)**; Anna Milts, no zoo listed, **Phoenix, AZ**; Edward A. Girard, **World Wildlife Zoological Park (AZ)**; Jason Balder, **San Diego Zoo (CA)**; and Kevin Lipski, **Oakland Zoo (CA)**.

Renewing Institutional Members

Lion Country Safari, Inc.
Loxahatchee, FL

Dickerson Park Zoo
Springfield, MO

Omaha's Henry Doorly Zoo Library
Omaha, NE

Henry Vilas Zoo
Madison, WI

New Institutional Members

Pikes Peak Community College
Colorado Springs, CO

Firestorm Decimates Australian Reserve Animal Collection

Dozens of rare captive native animals in the ACT's Tidbinbilla Nature Reserve have perished in the Canberra inferno. Among the casualties were 31 of 35 brush-tailed rock wallabies that were in a spacious enclosure. A captive breeding program was underway to help build up wild populations of the rare marsupial by releasing wallabies raised at the centre.


Two pairs of breeding regent honeyeaters at Tidbinbilla, 30 km (~19 mi.) west of Canberra, were central to another captive breeding program. Other casualties included 11 of 15 freckled ducks, another rare species held in a pond with their wings clipped. A corroboree frog, Australia's most endangered amphibian, was also lost.

All 20 koalas in the public viewing sanctuary in the reserve perished, as did 99 of 110 red and grey kangaroos and an unknown number of emus and other birds. Staff did remove a small collection of rare lizards.

The visitors' centre was relatively undamaged, and some visitors at the sanctuary at the time of the fire sheltered inside.

Distressed staff from the wildlife research centre in the reserve and firefighters who witnessed animals dying in the flames have been offered counselling.

This story was found at: <http://www.smh.com.au/articles/2003/01/21/1042911382498.html>



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Coming Events

The 2003 All Florida Herpetology Conference & Conserving Amphibians and Reptiles Through Education, a PARC National Conference - Both events will be held at the Sheraton Hotel in Gainesville, FL. Presented by the Florida Museum of Natural History with assistance from the Santa Fe Community College Teaching Zoo. Held in association with a conference on Conserving Amphibians and Reptiles Through Education, organized by Southeast Partners in Amphibian and Reptile Conservation (SE PARC).

All Florida Herpetology Conference: 5-6 April 2003
Contact: Herpetology @ (352) 392-1721; e-mail: maxn@flmnh.ufl.edu; Florida Museum of Natural History, P.O. Box 117800, Gainesville, FL 32611. (Call for papers and keynote speakers until 7 February 2003) Visit AFHC website: <http://www.flmnh.ufl.edu/natsci/herpetology/afhc.htm>

Conserving Amphibians and Reptiles Through Education (PARC Conference): 6-8 April 2003
Contact: George L. Heinrich, Heinrich Ecological Services, 1213 Alhambra Way S., St. Petersburg, FL 33705-4620; phone: (727) 865-6255; e-mail: highpine3@aol.com; Visit PARC website: www.parcplace.org

Tenth Annual International School for Elephant Management - 25 April - 8 May 2003 - Riddle's Elephant and Wildlife Sanctuary, AR, USA. For persons having worked full-time with elephants for at least one year. For registration information please contact clephantsanctuary@alltel.net

Third Annual Rhino Keeper Workshop - 15-18 May 2003 in Denver, CO. Hosted by the Rocky Mountain AAZ AAZK Chapter and the Denver Zoo. Will include speakers and a day at the zoo. For further information contact Rocky Mountain AAZK Chapter President Dave Johnson at (303) 376-4900 or email Workshop Chair Chris Bobko at rhinoquccn@yahoo.com

2003 Elephant Ultrasound Workshop for Wildlife Veterinarians - 4-8 June 2003. At Riddle's Elephant and Wildlife Sanctuary, Greenbrier, AR, USA. For further registration information please contact clephantsanctuary@alltel.net

Association of Avian Veterinarians 24th Annual Conference & Expo - 25-29 August 2003 in Pittsburgh, PA. To be held at Pittsburgh's Westin Hotel and the David L. Lawrence Convention Center. Theme is "Take Flight in Pittsburgh". Program will include lectures, practical labs and Master Classes. To view the entire program and to register on the web, visit www.conferenceoffice.com/AAV. To contact the AAV Conference Office, email AAV@conferenceoffice.com; phone (303) 756-8380; fax (303) 759-8861.

American Zoo and Aquarium Association (AZA) Annual Conference - 7 - 11 September 2003 in

Columbus, OH. Hosted by Columbus Zoo and Aquarium. For more information contact Patty Peters: e-mail ppeters@colzoo.org

2003 AZAD Annual Conference - 9-14 September 2003. Hosted by Omaha's Henry Doorly Zoo, Omaha, NE. Interested parties may contact Judy Sorensen at 10969 North Lakeshore Dr., Blair, NE 68008 or by email at howard@nfinity.com

30th National AAZK Conference - 26-30 September, 2003. Hosted by the Greater Cleveland AAZK Chapter and Cleveland Metroparks Zoo. Watch for further information in upcoming issues of *AKF*. Registration and Hotel Forms will appear in April issue.

Elephant Managers Association Conference - October 2-5, 2003 - Hosted by Knoxville Zoological Gardens, Knoxville, TN. For more information, call (865)-637-5331, ext. 359 or e-mail bhargis@knoxville-zoo.org

First International Conference on Zookeeping in 2003 - The Netherlands - Will be held between 2-10 October at Birdpark Avifauna. For further information please visit: www.iczoo.org

American Association of Zoo Veterinarians - 5-9 October, 2003 in Minneapolis, MN. Program sessions include Reptiles and Amphibians, Avian Medicine, Nutrition, Pharmacology (Nutriceuticals and Phytochemicals), Vaccinations, AZA Programs (SSP/TAG Veterinary Advisory Updates), Advances in Technology and Diagnostic Testing, Case Reports and Practice Tips, Aquatics and Marine Mammals, Hoofstock, Carnivores and Small Mammals, Hospital Administration and Leadership, Primates, Pathology, Conservation Medicine, and Emerging Diseases. There will also be a poster session, veterinary and graduate student paper competitions, and workshops/wet labs. For additional information, visit the AAZV website at www.aazv.org or contact Wilbur Amand, VMD, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; Phone (610) 892-4812; Fax (610) 892-4813; email AAZV@aol.com

Sixth International Conference on Environmental Enrichment - 2-7 November 2003 in Johannesburg Zoo, South Africa. The provisional conference attendance fee is US\$250, but this will be confirmed and reduced based on price and currency fluctuations towards the end of 2002. South Africa is an exciting destination that boasts a number of world class zoos. Further information can be obtained from our website at www.jhbzoo.org.za Please feel free to contact Mathew van Lierop who will be coordinating the conference at +27 11 646 2000 ext 233 or at mathew@jhbzoo.org.za

Post Your Coming Event Here - email to akfeditor@zk.kscoxmail.com

ABMC Kansas City Workshop Surveys

Submitted by Tom Aversa and Kim Kezer

Animal Behavior Management Committee

The Animal Behavior Management Committee (ABMC) met once again at the National Conference in Kansas City this past October. Committee members include Beth Stark from the Toledo Zoo (chair), Angela Binney from Disney's Animal Kingdom, Kim Kezer from Zoo New England, Jay Pratte, the newest member, from the Dallas Zoo, Tom Aversa from Woodland Park Zoo, and Roby Elsner from Riverbanks Zoo. Some of the projects that the ABMC has worked on during 2002 include distributing surveys to assemble a database of all behaviors trained at AZA institutions, converting the animal training bibliography to a searchable database, and developing an ABMC webpage. The ABMC also presents open training forums for the membership at AAZK national conferences.

Two workshops were presented at the 2002 conference: Training 101: Basic Principles of Animal Training, and a roundtable discussion on Training for Specific Behaviors. These workshops were well attended by many conference delegates. Beth did formal presentations at both workshops and then the participants broke into groups facilitated by AMBC members. In Training 101 delegates played the 'training game' which allowed them to experience training from the trainer's and the animal's standpoints. During the Training Specific Behaviors workshop the group broke into roundtables to discuss and develop shaping plans for training management behaviors, cooperation for non-invasive and invasive medical procedures, and show behaviors. Evaluation surveys were provided after the workshops to aid in the design of future workshops. The results of the surveys returned from the workshops are summarized below. Some participants did not turn in completed surveys, which may have affected the results. Choices unless otherwise noted below, were:

1=Highly disagree, 2=Somewhat disagree, 3=Indifferent,
4=Agree somewhat, 5=Highly agree.

Basic Training

Question 1: The agenda and objectives were clearly communicated. There were 38 responses with an average response of 4.5. Comments included "great job", "benefited me as a beginning trainer", "good for new people" and a suggestion to separate participants by experience.

Question 2: Do you feel that you obtained information today that will increase your comfort level with training animals? (Yes or No) There were 39 responses; 31 were yes.

Question 3: Rate your current knowledge or skill level 1=beginner, 2=above beginner, 3=moderate, 4=above average, 5=very knowledgeable. There were 39 responses with an average response of 2.4.

Question 4: The facilitation style was effective and should be used at future conference workshops.

There were 38 responses with an average response of 4.6.

Question 5: Please list training topics that you would like to see addressed in future workshops or articles. Some requests were:

- How to get shy animals on exhibit
- Hoofstock training
- Problem solving

- Techniques for capturing behaviors
- Roundtables separating trainers into groups of similar skills
- Dealing with aggression in training situations
- Training groups of animals
- Nail, hoof and beak trimming.
- Training for animal demonstrations

Question 7: The room set-up was effective for discussion. There were 34 responses with an average response of 4.3.

Question 8: The session was an appropriate length. There were 39 responses with an average response of 4.0. Most comments indicated that the 90-minute session was too short.

Question 9: The training topics were useful and pertinent to my needs as an animal keeper. There were 39 responses with an average response of 4.7. Comments were positive, and indicated that the session provided good basic tools, or was a good review.

Training for Specific Behaviors:

Question 1: The agenda and objectives were clearly communicated. There were 41 responses with an average response of 4.6.

Question 2: Do you feel that you obtained information today that will increase your comfort level with training animals? (Yes or No) There were 35 responses of which 31 were yes.

Question 3: Rate your current knowledge or skill level 1=beginner, 2=above beginner, 3=moderate, 4=above average, 5=very knowledgeable. There were 40 responses with an average response of 2.8 so this session attracted trainers with slightly more experience than the Training 101 workshop.

Question 4: The facilitation style was effective and should be used at future conference workshops. There were 38 responses with an average response of 4.7. One participant noted that the small groups made for an easy learning experience.

Question 5: Please list training topics that you would like to see addressed in future workshops or articles. Some requests were:

- Troubleshooting
- Problem solving.
- How to work together as a group in a training situation
- Crating and shifting
- Dealing with aggression
- Training to stimulate play behavior
- Hoof trimming.
- More on bird behaviors
- Case studies
- Training for specific avian medical issues
- Solving behavioral problems

Question 6: The room set-up was effective for discussion. There were 41 responses with an average response of **4.0**. Many felt that the room was too small and loud.

Question 7: The session was an appropriate length. There were 29 responses with an average response of **4.6**. Some comments indicated that the 90-minute session was too short. Other comments indicated that there should have been less time spent on background.

Question 8: Which animals do you have training programs for: Most mammal taxa were listed, as were a few birds and reptiles.

Question 9: The training topics were useful and pertinent to my needs as an animal keeper. There were 36 responses with an average response of **4.6**. Comments included "Training is fun", "I enjoy hearing about other institutions training programs", "maybe a multi-day workshop at the next conference?", and "I feel like I have improved from a beginner to a moderate trainer from this session".

The ABMC would like to thank all the delegates that turned in completed surveys after the workshops. Any of the committee members can be reached through Beth Stark (Committee Chair), at the Toledo Zoo, (419) 385-5721, Bethstark@toledozoo.org.

Three Types of Data Transfer Forms Available from AAZK

Just a reminder that three different types of data transfer forms are available to requesting institutions from AAZK at no charge. These forms are designed to be used whenever an animal is shipped from one facility to another so that important information on that animal can be passed on to the receiving keeper and veterinary staffs.

The following forms are available by contacting Barbara Manspeaker at 1-800-242-4519 (U.S.) and 1-800-468-1966 (Canada), or by emailing your request to aazkoffice@zk.kscoxmail.com

- Animal Data Transfer Form (ADTForm) - includes information on diet, reproductive history, general medical history/physical conditions, and enclosure/maintenance data on animal(s) being shipped.
- Enrichment Data Transfer Form (EDTForm) - includes information on behavioral history, enrichment currently used and how implemented (food, exhibit, artificial, etc.), safety concerns for animal(s) being shipped.
- Operant Conditioning Data Transfer Form (OCDTForm) - includes general background information, training specifications, training schedule, behaviors trained and methods used for animal(s) being shipped.

These forms are provided free of charge as a professional courtesy of AAZK, Inc. We encourage all zoos, aquaria and other animal care facilities to adopt the use of these forms when shipping animals. We extend our thanks to the following institutions for assisting in the printing expenses for these forms: Columbus Zoo (ADTForm), Arizona-Sonora Desert Museum (EDTForm), and Disney's Animal Kingdom (OCDTForm).

MOVING?

Please let us know when you change your address! It now costs AAZK 99 cents every time an *AKF* is returned because of an incorrect address. Call 1-800-242-4519 (U.S.) or 1-800-468-1966 (Canada) or e-mail aazkoffice@zk.kscoxmail.com to report your new address.

AAZK Conference – Cleveland 2003

**26 - 30 September, 2003
Cleveland, OH**

Parents hide your children! AAZK is coming to town for a little “Strange Situations...Wild Occupations”. The 30th National AAZK Conference will be in Cleveland, 26-30 September. The room rates will be \$119 at the Sheraton Cleveland City Centre downtown. Full registration for the conference will be \$150 for AAZK members and spouses. (Registration and Hotel Forms will appear as an insert in the April 2003 *Forum*.)

The Cleveland Metroparks Zoo sits on 168 peaceful acres in the middle of a busy city. Delegates will be awed by our two acres of indoor rainforest exhibits. Take a walk with wallaroos and kangaroos in our Australian Adventure, where you can see one of the only four Goodfellows Tree Kangaroos born in the U.S. in 2002. Only three zoos in the U.S. have these animals. The Cleveland Zoo also boasts of having the largest primate collection in North America. Watch out for our dust, as the 21,000 square foot facility for Zoological Medicine will be in the building stage. This center will include a veterinarian hospital with medical laboratories and surgical suites, a hospital ward and quarantine area, and interpretive and education areas with public access.

Greater Cleveland is the place to be for serious business and serious fun! This city is continually improving itself to become known as the “New American City”. Delegates will be within walking distance of the Rock and Roll Hall of Fame and Museum, the Great Lakes Science Center, two malls, and several restaurants and nighttime hot spots. That is only the half of it. You must come and experience this city for yourself. The icebreaker will be at Jacob’s Field Terrace Club, home to the Cleveland Indians. The pre-conference trip will leave on 25 September for the Detroit Zoo, where a lunch will be provided. Then on the return trip to Cleveland the next day, 26 September, we will be treated to tours and lunch at the Toledo Zoo. The post-conference trip is 1-2 October. It includes the Pittsburgh Zoo and/or the National Aviary, plus a whitewater rafting trip to Ohiopyle, PA.

By now you all should have received your letters regarding **THE CLEVELAND CHALLENGE**. If your Chapter donates \$250 or more to the 2003 National AAZK Conference, your Chapter’s name will be put into a drawing for one full registration (includes the Icebreaker through the Banquet) PAID IN FULL plus a double occupancy room at the Sheraton City Centre for five nights for any one member of your Chapter that you choose. This is an effort to increase the support for the National Conferences. On average only 8 of 81 Chapters have financially supported the National Conference. **Deadline is 15 July, 2003.** Let’s help to make the 30th annual AAZK Conference a success.

As more information comes in regarding the conference, you will be updated here in the *Forum* and you can visit www.clemetzoo.com and click on AAZK Conference. You can also call (216)661-6500 x4517.

(Editor’s Note: Please be aware that the dates for this conference are not the usual Sunday-Thursday schedule. The dates 26-30 September encompass the days Friday through Tuesday. Be sure you take this into consideration when requesting time off and making travel plans.)

Important Information for Travelers to the 2003 AAZK National Conference and the International Congress on Zookeeping

A post-conference option for the 2003 AAZK National Conference includes the International Congress on Zookeeping (ICZ). The AAZK conference is on 26-30 September. The ICZ is occurring in Alphen a/d Rijn, Holland, 3-7 October. We have investigated various travel opportunities for AAZK delegates attending the ICZ.

Continental Airlines is the official airline for BOTH conferences. We need at least 10 passengers to qualify for the discounted rates. These passengers can arrive/depart on different dates. A group rate requires that all passengers arrive/depart on the same dates, and travel on the same flight. Since it is unlikely for everyone to stay the same length of time, and due to the extremely difficult task of coordinating a flight for all of our delegates, we have secured a discount rate only, not a group rate. It is very important to note that since the AAZK Conference involves domestic flights, and the ICZ involves international flights, separate contracts had to be negotiated.

•••When booking flights for AAZK in Cleveland, use Reference # UPMV4T. •••

•••When booking flights for the ICZ, the nearest airport is Amsterdam.
Use Reference # VSCB5H. •••

These numbers entitle you to 10% off Y and H fares and 5% off all other fares. An additional 5% is taken off your fare if you are ticketed at least 60 days prior to your travel date.

The final banquet for the AAZK conference is on Tuesday night, 30 September. Keep in mind you will "lose" a day when traveling to Amsterdam. The icebreaker for the ICZ is on Friday night, 3 October. The opening keynote address is on Saturday morning, 4 October. Leaving Cleveland on either 1 or 2 October should have you in Holland in time for the icebreaker. After arriving in Amsterdam, you will need to travel to Alphen a/d Rijn via train or car rental. There may be a possibility to arrange for group transportation if we have a large group arriving at the same time. Stay tuned for additional information regarding travel between Amsterdam and Alphen a/d Rijn. For your return, the ICZ ends on Tuesday, 7 October. Post-conference trips will occur on 8-10 October.

Keep in mind you are not obligated to fly Continental. I would use every means necessary to find the cheapest flight. I hope this helps those who are starting to make plans. If you have any questions regarding travel to and from either conference, or need additional conference details, contact Shane Good at sjg@clevelandmetroparks.com, or (216) 661-6500.



REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

*By William K. Baker, Jr., Curator
Little Rock Zoo, Little Rock, AR*

Question

Animal Keepers regularly work in direct proximity to large hoofstock. Do you have any recommendations for maintaining a safe work environment? Part I

Comments

There are three areas that readily come to mind when working exotic hoofstock in a captive situation: basic safety, husbandry procedures, and neonatal care situations.

Basic safety is probably the single most problematic area for zoological institutions. By this I mean paying attention to the basics, locks for instance. Most of the locks that I have seen in use over my career have been marginally effective; they are neither the best nor the worst on the market. As a result, they tend to need a degree of annual maintenance, in other words, inspect, clean, and lubricate as needed. All of which, leads to the next area, remembering to actually lock and check the locks every time you exit an exhibit, when leaving the area for breaks, and especially when exiting the area for the day. Sounds simple doesn't it? You wouldn't believe how often this happens.

Husbandry procedures would be the second area of concern and is the one that requires the most skill to accomplish effectively. In my experience the best way to accomplish this is with a sound base of instruction. Typically, I always try to place a new Zoo Keeper with a more experienced one who is not only familiar with the area, but the animals are comfortable with this person as well. This typically provides a level of growing familiarity with the area and calms the animals by allowing them to desensitize by association. Essentially, if the new person is with someone they trust, then it's probably okay - from the animal's perspective. Eventually the new Zoo Keeper is able to work on their own, and this usually coincides with the end of the mentoring period.

The next point regarding husbandry is the actual activity within the exhibit with the animals. This is where familiarity not only with the species behavior is important, but with the individual animal personalities as well. This goes back to the "mentoring" period once again. Simply put, you have to be able to read their behavior and anticipate it as well. Conversely, you always should consider your actions as an animal professional while in the exhibit with the animals. If you are striking the ground with your rake while servicing the exhibit and you have your head down, this could be perceived by some hoofed species as a challenge and result in aggressive behavior from a dominant animal. It is vitally important that you are aware of flight distances, the attitude of the herd that day,

and environmental factors such as noise from service vehicles, landscaping equipment, and maintenance activity. Also, it's imperative that an established routine be followed for cleaning procedures and that the animals are aware that you are actually watching them. It's not enough that you see them, they need to know that you see them. As a rule, I always try to give a herd half of an exhibit, then I shift them to the other side. Eventually, they know the routine to the point that you can effectively predict the point at which they will begin shifting to the far side of an exhibit. The single most important factor to this type of work is "telegraphing" your actions so that it's clear to the animals what your intentions are at any given time while working in the exhibit area with them.

The third point would be animal care during the period associated with births. The first real indication of pregnancy and an impending birth will be subtle changes in behavior patterns, followed by physiological changes during gestation, and finally post-birth behavior. Basically, the time frames of concern are: pre-partum, parturition, and post-partum.

Activity patterns may indicate subtle or notable changes. Specifically, normal pathways on exhibit may be altered or not used altogether in favor of new ones. Resting sites on-exhibit may begin to vary or normal resting sites on-exhibit may be abandoned altogether in favor of new ones. Specimens may isolate themselves and refuse to come off display, and may even become reclusive and protective of newborn(s) resulting in aggression if disturbed. Conversely, specimens that have a history of aggression may become more stable after birth. However, this is a double-edged sword. An animal that was once consistently aggressive can now gravitate to extremes and should be considered highly unpredictable. Inconsistent shifting on and off exhibit should be expected.

The human factor should not be overlooked in this equation. It's extremely easy to lose sight of daily checks and balances when looking at newborns. In short, don't let the curves of the situation throw you off balance. Stick to routines as much as possible. It inherently keeps the safety where it should be and conditions the animals, new and old alike. Remember to keep visitors to a minimum. Extensive physical pressure can have a detrimental effect on the well-being of mother and offspring.

The greatest possible problem facing the staff will undoubtedly be the mental disruption of their personal routine. Once an established routine and the training associated with it has been "broken", the potential for an accident is definitely there. This requires an individual to literally scroll through their daily duties and insure that nothing has been overlooked. Some people handle this with written checklists or notes; others depend on recall.

Next Month: Animal Keepers regularly work in direct proximity to large hoofstock. Do you have any recommendations for maintaining a safe work environment? Part II

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)

Bird Bibliographies

Jeanette T. Boylan, Ph.D.
Dallas Zoo, Dallas, TX

Finding background information on bird species kept in zoos can be a difficult task. Many zoos do not have access to searchable databases and few bird species have husbandry manuals. Through access to some computer databases of published articles, I compiled bibliographies for several of the species at the Dallas Zoo. Bibliographies are valuable resources and hopefully publishing the ones I have will avoid another keeper having to "reinvent the wheel." The bibliographies contain articles published after 1984 and journal titles are not abbreviated because full journal titles are required by most Inter-Library Loan services. Several volunteers at the zoo helped compile the bibliographies.

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*Current as of December 2002.

A Haven for Former Lab Chimps

By Jessie Milligan

Fort Worth Star-Telegram Staff Writer

Reprint courtesy of the Fort Worth Star-Telegram

Chimpanzees who have spent much of their lives in research labs will be rewarded with a retirement home deep in the forests near Shreveport, La.

Chimp Haven, a refuge center planned to open in 2004, will be the nation's first federally supported care center for former lab chimps. About 75 chimps are scheduled to move in during the first phase. As many as 300 chimps may eventually call Chimp Haven home.

The refuge, about 240 miles from Fort Worth, will not be a zoo but will be open to the public for guided tours by appointment.

The concept of sheltering chimps bred to be used in biomedical research is being heralded by some as a sign that the nation's attitude toward lab animals is becoming more humane.

"Chimpanzees have been used in research to improve human health. It is only fitting that they be retired to a facility like Chimp Haven, which is able to provide them with quality lifetime care," says Philip Davies, a director of research for Merck Research Laboratories.

The surplus of chimps arose from "aggressive" breeding programs that were launched after federally funded labs overestimated the need for the primates in AIDS research, says Linda Brent, president of Chimp Haven's board of directors.

An estimated 1,300 to 1,600 chimps are kept in the nation's laboratories. Although many are used in various biomedical experiments, hundreds have never been used in research, Brent says.

The excess chimps are living out their lives at labs but could be better cared for at lesser expense in a refuge, says Brent, former director of the Southwest Foundation for Biomedical Research in San Antonio and a specialist in captive-chimpanzee care.

Anticipating the need for a refuge, Brent and others began planning a haven about 10 years ago.

Northwest Louisiana's warm climate and forestland, plus the support of the community, led Chimp Haven organizers to select the region as a site to build indoor and outdoor housing for the chimps, some of whom have never walked on grass, and an education center. In 1995, Caddo Parish government donated to Chimp Haven 200 acres within the Eddie D. Jones Nature Park, 20 miles southwest of Shreveport.

On 30 September 2002, the National Institutes of Health granted \$23 million to Chimp Haven to run the center for 10 years, and it approved \$5 million for a construction contract for the first phase of the haven. Plans call for continued fund raising and expansion of the facility.

It's up to the private, nonprofit Chimp Haven to raise about \$6 million in matching funds from corporate donors, grants and donations.

ONLINE: For more information, check out www.chimphaven.org.
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Elephant Management: Limiting Risks

By Gregory C McKinney, AAZK Member
Independent - Warrington, PA

In the wake of any tragedy resulting in the death of an elephant handler the Monday morning quarterback cannot help but speculate. Just why did this happen? What could have prevented it? Was there any indication that this was about to happen? These are all worthwhile questions leading to valuable discussion. But let us for a moment, ask instead: Could it happen again, somewhere, to someone? The answer is of course, undeniably, yes.

The possibility of injury or death is a necessary risk of current elephant management programs. All elephant handlers know this. All elephant handlers accept this. Many believe that this inherent risk is greatest in a free-contact environment—one in which elephants and handlers share the same space. Many of these keepers believe that the risk is justified by the more intimate interactions that one can have with their charges.

However, while elephant handlers and managers do accept the risk, zoo visitors should not be expected to do so. Elephant rides, whether through an internal zoo program or as performed by an outside concessionaire, have no role in zoos today. Following any accident involving elephant/human confrontation, there is no shortage of statements to be found, including remarks from zoo officials themselves, censuring, or at the very least questioning, the continued free-contact practice. It seems an imprudent outrage for one zoo to continue to expose the public to the possibility of injury or death while another condemns the practice for the zoo staff itself.

There are many reasons given in support of elephant (or other animal) rides, such as: the raising of funds and awareness to support conservation, the mental and physical exercise of the animal, and the appreciation shown by the public for the close contact. These claims, though, cannot be used to justify the risk, as to do so, incorrectly implies that there is no other way for these actions to be addressed.

Several zoos have decided to do away with elephant rides. Some have done so to prevent accidents. Others have found this risky amusement to be at odds with their core purpose. The AZA has advised its member institutions to discontinue public rides. Those that continue to expose their visitors to this risk are showing an irresponsible recklessness. These institutions should be pressured to bring this practice to an end. The elephant community itself should embrace this cause, because any individual incident reflects upon the whole. Those institutions that practice the traditional form of elephant management should be especially critical. The captive NA African and Asian elephant populations are at real risk of becoming unsustainable. One accident alone could have devastating repercussions to existing programs and to the public's perception of such. One accident alone could lead to legislation or policy that could negatively impact existing successes. One accident alone could, in fact, affect other programs in the zoo community. Accountable institutions should not be made to suffer for actions committed by profit-driven, indifferent ones.

(Editor's note: The Viewpoint Column offers readers an opportunity to their express opinions on topics related to the profession of animal keeping. It is not a forum for expressing disagreements with employers about labor-related issues. Opinions expressed in this column do not necessarily reflect those of AAZK, Inc. or Animal Keepers' Forum. Publication of opinions in this column does not constitute endorsement by AAZK, Inc. or Animal Keepers' Forum. Materials submitted are published at the discretion of the editor.)

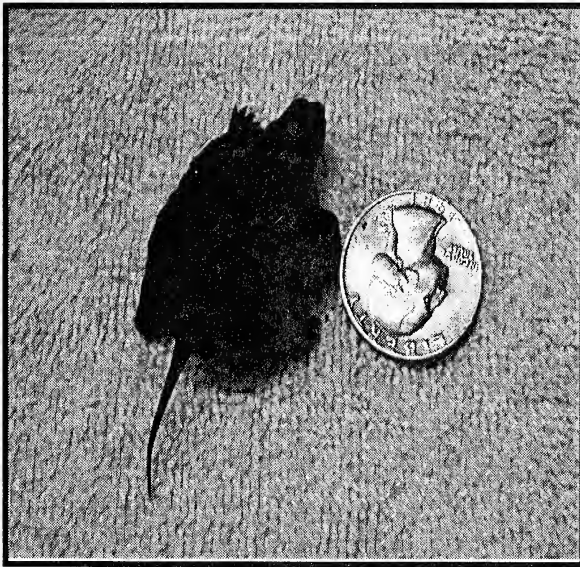
The Blanding's Turtle Recovery Program

By
Angie Dosch, Zookeeper
Cosley Zoo, Wheaton, Illinois

Like numerous other wild animals, the Blanding's turtle (*Emydoidea blandingii*) has experienced decreasing populations through the years. In Illinois, the Blanding's are on the threatened species list. Some of the causes for decline are all too familiar. Human intervention has created a loss of habitat and degraded much of what remains. Several turtles are wounded or killed annually by motor vehicles and fishing accidents. Others are collected from the wild to be kept as pets.

But there is more to the story of the Blanding's turtles. These turtles face extremely high egg and juvenile predation rates in the wild. Hatchlings that may survive will not enter the breeding population for 15-20 years. In DuPage County, Illinois, we find fragmented populations consisting primarily of older adults and very few young turtles contributing to future of the species.

The plight of the Blanding's turtle prompted the Forest Preserve District of DuPage County (FPDDC) to begin the Blanding's Turtle Recovery Program. The goal of this project is to create a stable wild population of the turtles in DuPage County through habitat improvement, including nest protection; public education, such as signs explaining what to do in the event that a turtle is caught on a fishing line; and a head start captive breeding program.



Blanding turtle on day of hatching.
(Photo by Sandy Woltman)

For the breeding program, the FPDDC collects eggs from adult females each spring, then hatches and rears the young Blanding's at an accelerated growth rate. Prior to 2001, these turtles were released at one year of age into preserves in DuPage County. A very minimal survival rate with the yearling turtles lead the FPDDC to believe that a second year of rearing may be necessary. Larger turtles may be more likely to survive a predator attack.

As a small facility, with limited resources, Cosley Zoo was looking to become involved in a local conservation project. We offered our assistance in the program by caring for the Blanding's turtles during the second year. At Cosley, all of the turtles are divided into small groups to ensure ample dietary intake, space and decreased possibility of disease

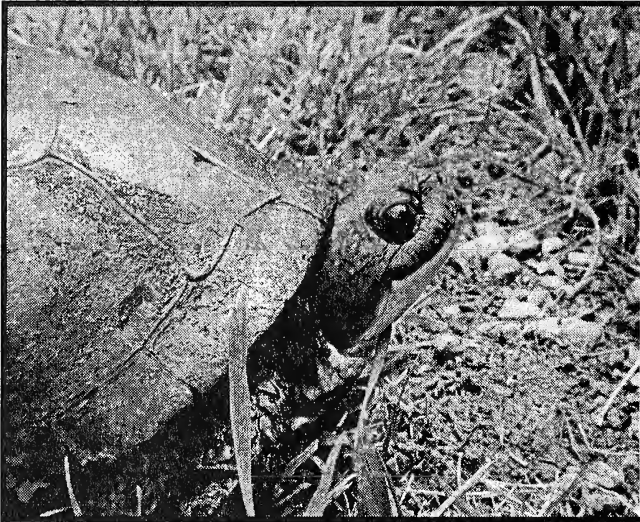
transmission and aggression. September through April, the turtles are housed in an inside quarantine area. Temperatures, daylight, and water condition are monitored to encourage a favorable growth rate. To accurately measure the amount of nutrients each turtle is receiving, a diet consisting of aquatic reptile pellets is given daily. The turtles are acclimated to environmental conditions May through August within a secure caged area, which prevents predation and offers a combination of sun and shade. Both of these housing areas allow for minimal human contact to prevent habituation.

On 10 April 2001, Cosley Zoo staff assumed responsibility for the daily maintenance of 57 yearling Blanding's turtles. Along with the requirements of feeding and cleaning, each turtle is observed

daily to identify any physical or behavioral problems. Every two weeks, the turtles are weighed and their carapace lengths measured with calipers to monitor and record their growth.

This is the largest number of two-year-olds reared for this program and has been a huge learning experience for our staff as well as for the veterans in the FPDDC. We have encountered bacteria and neck lesions on turtles that had grown quickly. Aggression has become a recent problem with the larger turtles and limits the number we can house per tub. Recently, we began supplementing their pellet diet with live prey and greens. Several of the two-year-old Blanding's were initially hesitant to chase and catch the more elusive meal. However, by release time, all turtles were able to capture the prey. These observations will help us to determine the course of action for future hatchlings, such as feeding live prey at an earlier age.

We typically release the turtles in mid July, however, this year the date was pushed back due to a draught, which caused low water levels. On 23 September 2002, 55 two-year-old Blanding's were released into a marsh within the forest preserve district. Two turtles were held back from the release due to injuries they had sustained from more aggressive turtles. Microchips were inserted into the skin in front of the right rear leg prior to release to correctly identify any turtles located in the field.



Adult Blanding turtle (Photo by Sue Wahlgren)

At the same time, radio transmitters were attached to the shells of 32 turtles so that we could monitor their location and behaviors. The animal ecologist tracked the turtles every two weeks until hibernation.

One month after the release, all of the turtles with transmitters have been found alive and near their release sites. These turtles were low in the water in preparation for hibernation and away from the reach of predators. One turtle has lost its transmitter, but we do not believe it was due to predator contact. Another turtle was attacked, but only the transmitter suffered any damage.

However, a third turtle lost his right rear leg in an attack. The injured turtle was taken to a rehabilitation facility to be treated and may be released at a later date. Two weeks later, two turtles had succumbed to predators. Even with these few losses, this release is still the most successful to date.

This past summer, the FPDDC found an approximately four-year-old Blanding's turtle in the wild. The stretch marks on the carapace of this turtle indicate that it was a captive reared turtle. Not all turtles, prior to 2001 were identified with the microchips, so this may be a turtle from the recovery program. Though a predator had damaged the shell, the turtle was healthy.

Since 25 April 2002, Cosley Zoo has housed an additional 64 turtles, which were hatched in 2001. Funds from the AAZK Conservation, Preservation, and Restoration Grant helped us to provide adequate housing and food for all 121 Blanding's in our care during this time.

This spring, the forest preserve hatched 97 Blanding's turtles. Due to limited holding space, 38 of the spring hatchlings were also released on 23 September 2002. The remaining 59 will join us at Cosley Zoo in the spring of 2003.

The results from this last release are very promising and the knowledge that we gain with each year brings even more optimism for upcoming releases. Through habitat improvements and successful releases we bring hope for the future to the Illinois threatened Blanding's turtle.

Acknowledgements

I would like to thank the Forest Preserve District of DuPage County, in particular Dan Thompson, Sandy Woltman and Rose Prince for consulting Cosley Zoo in the Blanding's Turtle Recovery Program. Thanks also to the AAZK Grant Committee for their financial support through the Conservation, Preservation, and Restoration Grant.

Primates May Self-Medicate During Pregnancy

Researchers at Kyoto University may have come upon further evidence that some primates may self-medicate with natural substances. In what scientists believe may be the first example of an animal taking a natural drug during pregnancy, researchers noticed that the sifaka (*Propithecus verreauxi*) eats plants containing poisonous tannins before giving birth. Small amounts of tannins are known to stimulate milk production and veterinarians use them to prevent miscarriage. Sifaka are a type of lemur native to Madagascar.

New Scientist magazine reports that "This makes them the first animal known to self-medicate when pregnant."

Michael Huffman, a primate expert at the Kyoto University, said pregnant females observed in Madagascar ate more tannin-rich plants than other males or non-pregnant females. Although he can't be sure that the results are due to tannins and not other factors, primates have been spotted eating other natural medicinal products in the jungle.

"Some 39 species have been observed eating soil, which soaks up toxins in the gut and allows the animals to eat poisonous plants without getting sick," according to the *New Scientist*.

Chimpanzees have also been observed swallowing leaves whole to induce diarrhea ridding their systems of tapeworms and other parasites. - *Excerpted from Reuters News Release and New Scientist Magazine*

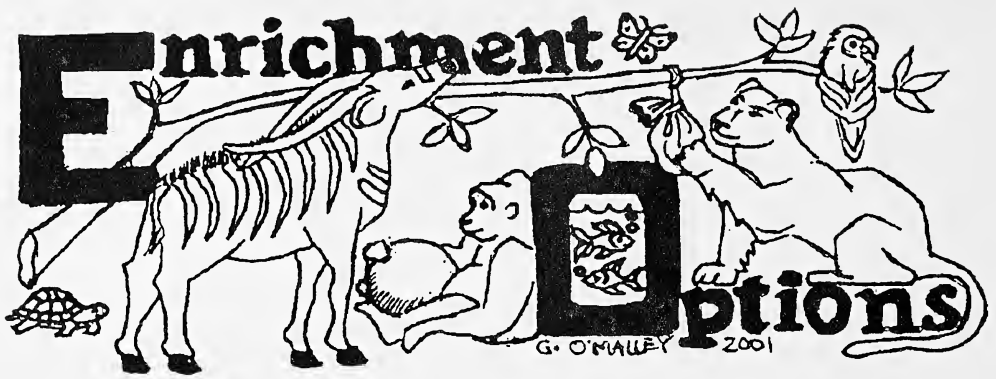
Oregon Zoo's Oldest Elephant Dies

The Associated Press out of Portland, OR have reported that Hugo, the Oregon Zoo's oldest bull Asian elephant, has died of unknown causes. Keepers discovered him on 18 January lying on his side and breathing heavily. Zoo staff used a sling to get the 43-year-old bull on his feet and began administering fluids and antibiotics.

"Keepers and vets cared for Hugo around the clock, but were unable to save him," said Chris Pfefferkorn, Zoological Curator. "We cared a lot for Hugo and gave him a 150 percent effort — it was hard for us to see him go." Hugo died on 20 January, 2003. It was hoped that pending necropsy results would pinpoint the exact cause of death.

"He was highly intelligent," said Elephant Keeper Jeb Barsh. He enjoyed challenges like food puzzles and playing with his many elephant toys. He also liked to get huge ice blocks that he would quickly break apart - he was just a magnificent animal."

Hugo came to the Oregon Zoo on November of 1983 from the Ringling Bros. and Barnum & Bailey Circus. At the time of his death Hugo weighed approximately 10,000 pounds and stood 10 feet tall. The Oregon Zoo's innovative and respected elephant management program is world-renowned in the zoo community. Twenty-seven baby elephants have been born at the Oregon Zoo. No other zoo comes close to this accomplishment. Currently, the zoo is home to six Asian elephants: four females and two males. See more that their website www.oregonzoo.org<



By Jan Roletto, Arcata, CA
and Dawn Neptune, Utah's Hogle Zoo

Making Sense of Enrichment and Auntie Joy's Choice of Presents

By Dr. Joseph C.E. Barber, Research Fellow
Disney's Animal Kingdom, Orlando, FL

"Thanks for the present, Auntie Joy" you say, looking down at the green and red striped monstrosity that is your new Christmas sweater – carefully knitted after what appears to be a drunken night on the town. "Yes, I'll certainly wear it..., every chance that I get". Does that sound familiar? It is something that I am sure happens frequently to lots of people at most occasions where gifts are given. Now that the holiday season is over, you may own one or two new Christmas sweaters of your own! But what does this have to do with enrichment, you may ask. Well, giving presents to people is actually quite similar to providing enrichment to the animals in your collection. Both are enjoyable to do, but both end up being much more effective if they are part of larger process.

Let me explain. What Auntie Joy saw as a most useful and fashionable gift, you probably see as more insulation for your attic or food for the moths. In other words, what we have here is a difference of perspective. Living in New England, Auntie Joy would certainly welcome such a warm and cosy gift herself. The green and red she chose are most festive, and all the young people are wearing these types of sweaters these days (aren't they?). Living in Florida, even thinking about sweaters makes you sweaty, green and red were never your colors, and whatever it is the young people are wearing these days, it is certainly not woollen sweaters. Whenever we provide enrichment to animals, we are at risk of falling foul of the same differences in perspective. After all, if Auntie Joy can make such a heinous error of judgement for someone from her own species and family, what happens when we try to provide enrichment for a totally different species?

In order to make sure that we are talking about the same thing, let's define exactly what enrichment is. The American Zoo and Aquarium Association (AZA) define enrichment as:

"a process for improving or enhancing animal environments and care within the context of their inhabitants' behavioral biology and natural history. It is a dynamic process in which changes to structures and husbandry practices are made with the goal of increasing behavioral choices available to animals and drawing out their species-appropriate behaviors and abilities, thus enhancing animal welfare" (AZA/BAG, 1999).

There are several important points made within this definition, and it will be worth spending some time looking at these specific points more closely.

Firstly, enrichment is defined as a ‘process’. That means that rather than saying that a Boomer Ball® given to a lion is ‘enrichment’, the process of identifying a goal for the Boomer Ball® (to promote species-appropriate hunting), planning when it should be given, providing it, and then evaluating its success is enrichment. In fact, within their 2003 Accreditation Standards, the AZA states that the enrichment process should be made up of the following elements: “goal setting, planning and approval process, implementation, documentation/record keeping, evaluation and subsequent program refinement”. Thus, a Boomer Ball® is an enrichment initiative, but, as a physical object, only makes up part of the overall enrichment process. I will talk about this process more a little later.

The second point to be made about the definition is that the enrichment process improves and enhances both “animal environments and care” by making changes to “structures and husbandry practices”. In other words, enrichment does not have to be confined to physical objects (like the Boomer ball^o), but can also include more intangible processes, such as husbandry training, or providing different types of social opportunities, etc. This is taking enrichment at a very holistic level. In fact, anything that acts to promote species-appropriate behavior, or that provides animals with choices or control over their environment can be seen as part of the enrichment process – especially if it is something that we can control (e.g., not a naturally occurring phenomenon that is out of our control – e.g., a squirrel running into the lion enclosure) (Mellen & MacPhee, 2001).

The third point of interest in the definition is the term “goal”. Any enrichment initiative we provide the animals should have a goal associated with it, and that goal should be to promote species appropriate behavior, and provide choices or control to the animal. Providing goal-oriented enrichment makes us accountable for the type of enrichment we provide. With a goal in mind, we can ask questions such as “did the enrichment achieve its goal?”, and these types of questions make up the documentation and evaluation piece referred to in the AZA Accreditation Standards. Those enrichment initiatives that achieve their goals can be considered as truly enriching. Initiatives that are never used, for example, may act to make the environment more complex, but since they do not promote species-appropriate behavior, or provide choices or control, they are not enriching.

To illustrate this point, let us suppose that you are an avid reader, and I bought you 10 books for your birthday. However, suppose that I mistakenly bought you 10 books written in Swedish. In my mind, the goal of the books is for them to be read by you. However, trying to read books written in Swedish is very hard, and you would probably give up fairly soon, or never try it in the first place - they are written in Swedish, after all. Just because you were able to read English books (which we will say means that those books achieved their goal), doesn’t mean that all books are enriching regardless of what they are about or in what language they are written. Books written in Swedish certainly make the environment more complex (before there were no books, now there are 10), but they do not achieve their enrichment goal.

Now, complexity is not a bad thing in itself. In fact, after a while of not being able to read the Swedish books, you might start using the pages to make paper airplanes. If this is also a species-appropriate behavior (which we will say it is), then we may change the goal of this particular enrichment initiative (books written in Swedish) to the construction of paper airplanes, or manipulation of the pages in any way. However, if you never looked at or touched the books written in Swedish again (knowing that they are written in a foreign language, and not wanting to rip the pages out), then adding complexity to the enrichment is not enriching.

Finally, from the definition of enrichment, the whole purpose of enrichment (beyond the promoting of species-appropriate behavior, choices and control) is to ensure that animals have good welfare. Animal welfare (not to be confused with the ethical standpoint of ‘animal rights’) is another term that needs to be defined. Animal welfare deals with both the health of an animal and its psychological well-being. While we all have a fairly good understanding of what good health represents (absence of disease or injuries), we find it more difficult to visualise what psychological well-being looks like, especially for our less related animal cousins (e.g., fish, reptiles, amphibians, etc). For humans, psychological well-being represents our personal emotional experiences – what we think and feel. Most scientists give most animals the benefit of the doubt when it comes to being able to feel similar types of emotions (although it is impossible to prove scientifically that you have the same emotions as I do, or have emotions at all, for that matter).

In terms of welfare, those 'feelings' that can lead to individuals experiencing suffering are usually the most important. Such feelings include: pain, frustration, and fear. It is likely that many of the emotions that we humans feel are (or have been) useful to our species now and in the past. For example, the development of certain emotional states, may have helped us adapt to the highly complex social environment that we now find ourselves in. The same is most likely to be true for other animals. That is, any emotional states that they can experience are likely to be linked with their evolutionary history. Since being jealous or feeling guilty are not particularly adaptive for a sloth, let's say, then it is unlikely that the sloth experiences these same emotional states as we do. Not all animals will necessarily experience the same emotions as us, and it is possible that we may not experience some emotional states that other species experience. The reason why the subject of animal welfare focuses primarily on negative emotional states that lead to suffering is that it is probably not appropriate to talk about wanting animals to be 'happy', at least not in the most simplistic sense of the word. In the wild, animals have evolved to achieve two main goals, survival and reproduction. Having the opportunities to achieve these goals might equate to what we would call 'happiness' in animal terms.

Enrichment plays an important role in ensuring that animals experience good welfare, both in terms of health (increasing the activity levels and reducing obesity) and psychological well-being (providing opportunities for animals to perform species-appropriate behaviors, and perform these behaviors to avoid experiencing negative emotional states). All aspects of animal care affect animal welfare, and the goals of all animal care programs (veterinary care, nutrition, training, husbandry, habitat, research and enrichment) should be to enhance animal welfare.

Earlier I had mentioned the different elements (from the AZA 2003 Accreditation Standards) that made up the enrichment process. At Disney's Animal Kingdom, these different elements make up what is called the enrichment framework (see www.animalenrichment.org). Once again, those elements are: setting goals, planning, implementing, documenting, evaluating, and readjusting. Since the first letters of these elements spell SPIDER, I will refer to this as the SPIDER model. As I stated earlier, the actual act of providing enrichment initiatives to the animals makes up only one part of the SPIDER – implementation. I also said that for enrichment to be effective, it needs to be considered as a process, and that all elements of this process are necessary.

Let us consider the SPIDER model in relation to Auntie Joy's Christmas present, and see just how Auntie Joy used SPIDER to help her come up with her present for you. The first step is the setting goals process. Now, Auntie Joy is no nitwit. She appreciates that it is hot in Florida for most of the year, but she also knows that the air-conditioning in most buildings makes the environment intolerably cold. Knowing that you would not buy yourself such a useful item of clothing, Auntie Joy decided to make you one herself. The goal of the sweater (the enrichment initiative) is to provide you with the opportunity to regulate your temperature (akin to providing shade for animals during the summer months). In terms of an animal example, the setting goals process may identify that the natural history of a certain species of birds includes nesting in riverbanks. The natural history of any species provides us with a guide to help us provide the most appropriate environment for captive species. In order to promote the species-appropriate nesting behavior in our bird, one possibility might be to construct an artificial riverbank. However, there may be many different ways to achieve the same goal – nesting.

After identifying a behavioral goal, Auntie Joy moves on to the planning stage. In terms of enrichment for animals, the planning stage should involve some sort of approval process, and then the budgeting of time and money to get the enrichment initiative made. Following this process, Auntie Joy phones your mother up before Christmas to ask if you have any allergic reactions to wool, and to find out what your favourite colors are. Your mother informs Auntie Joy that you have never had trouble with wool before, and (based on the toy cars you used to play with when you were five) says that your favourite colors are red and green. Based on this information (which in animal terms might be approval from the vets or nutritionist that an enrichment initiative would not lead to any health or safety concerns), Auntie Joy budgets for buying the wool that she needs, and schedules time in her calendar for knitting every Monday afternoon at two o'clock.

As is often the case, the fun part of the enrichment process is the implementing. After weeks of

knitting, Auntie Joy wraps up the sweater in shiny paper, making sure to tape down any loose edges (ensuring that the unwrapping process is extended for as long as possible), and pops the present into the mail. Come Christmas morning, you feverously unwrap Auntie Joy's present only to find the woollen monstrosity lying in wait inside.

Auntie Joy has made it through the S-P-I part of the SPIDER. Most institutions will have a formalized process for the S-P-I part of the enrichment process. However, when it comes to D-E-R (documenting, evaluating and readjusting), often nothing is attempted, or what does occur happens rather haphazardly. In reality, animal care staff often go through the evaluation and readjustment part of the enrichment process in their heads, very quickly. This is what scientists often refer to as the 'art' of animal care. However, a more systematic approach to D-E-R can make a significant difference to the effectiveness of your enrichment program. Auntie Joy will provide an example of this.

Merely providing the enrichment initiative to the animals does not tell you whether or not that enrichment initiative was effective. While Auntie Joy can phone you up and ask you if you like it and will wear it (which you dutifully say that you do and you will), the same is not possible for animals and their enrichment, although an animal's behavior may provide a more honest representation of whether or not the enrichment was effective.

This year, Auntie Joy decides not to take your word for it (that you like it and will wear it everyday), and attempts to find out whether or not her 'enrichment' was effective. When it comes to enrichment, the 'did it work?' question is often too big to be able to answer effectively. There are many elements that contribute to whether an enrichment initiative worked or not. For example, did any of the animals use it, did they all use it, did they use it for its intended goal, how often did they use it, did it increase aggression within the group, etc.? Since some enrichment initiatives will be used by some animals some of the time, it is very difficult to say absolutely that any enrichment initiative worked or did not work. It is much more useful to be able to say that it did work because these animals used it in this way, at these certain times. Thus, the key to any type of enrichment documentation is to come up with some specific questions to begin with. What is it that you want to know about the way that animals interact with their enrichment? Are you interested in whether or not certain animals use the enrichment, or how often they use it? Which questions you ask will often depend on the specific types of enrichment, animals and situations that you are dealing with.

Auntie Joy follows these instructions, and creates a list of questions that she has about the sweater. She wants to know if you wear it, how often you wear it, where you wear it, and whether it keeps you warm when you do wear it. Coming up with these questions before collecting any information is vitally important, as the question you have determines what method of documentation you need to use to answer it. Not all methods of documentation can answer all questions. For example, if Auntie Joy collects information on where you wear the sweater she might also have enough information to answer the question 'do you wear it?' and 'how often do you wear it?', but has no information regarding whether it keeps you warm. Also, some questions are more straightforward than others. If Auntie Joy was just interested in whether you wore it at all (regardless of how many times you wore it in the future), then her documentation process might end as soon as she saw you wearing it once (e.g., at Christmas dinner). This method of documentation answers her specific question, but does not provide her with information about how often you wear it, where you wear it, or whether it kept you warm, and she may not be interested in finding this information out. Ultimately, the documentation process allows you to find out answers to questions you have about the way your animals interact with enrichment. This should provide you with the ability to provide the most effective enrichment in the future – the evaluation and readjustment process.

Let's say that Auntie Joy is interested in finding out how often you wear the sweater. To do so she might use a combination of direct and indirect observations. Indirectly, she might pay you a visit one day, snoop around your closet to see where the sweater was, and document its location. If it is at the back of the top shelf (or in the attic acting as insulation), then it is likely that the sweater is mostly unused. Auntie Joy may also ask your friends and family whether they have seen you wear her sweater, and record their comments. More direct observations may involve her coming to visit you at work (where the air-conditioning is super-cold) to see if you are using her sweater to regulate your temperature. She might take a photo of what you are wearing each time she visits, or simply

record her observations on a calendar (e.g., ‘Monday 16th January – subject was wearing a blue shirt with a black vest’). Through a combination of measures (and trying to work out what is the best form of documentation to use is often the trickiest part – many questions are very straightforward to answer, but for others you may need the assistance of someone with an animal behavior research background, perhaps from a local university) Auntie Joy eventually has enough information to be able to perform some evaluation – taking that information and looking to see if there are trends and patterns over time. In other words, the evaluation process provides you with the answer to your question. Looking at all the information that she has collected, Auntie Joy is now in the position to say that, based on her findings, you have rarely, if ever, worn her sweater since Christmas dinner.

For your animals, it may be that some individuals never use certain enrichment initiatives, while other use them all the time. The documentation and evaluation process can help to identify which individuals use what, and how – or answer many of the specific questions that you may have. What happens in the readjustment part of the process depends on what you found out through your documentation and evaluation process. Knowing that you never wear her sweater, Auntie Joy may choose never to knit you one again. However, on one of her visits to your work place, Auntie Joy remembers seeing you wearing a black sweater. In fact, looking back at her photos and written comments, Auntie Joy sees that none of the clothes you wore were ever colored green or red (looking for trends and patterns in this way is part of the evaluation process). Using this information, Auntie Joy decides that for next Christmas you will get a smart looking black sweater, and that rather than taking your word for it that you like it, she will once again document just how effective her present was. This type of readjustment would be like trying different types of substrate given to a ground-dwelling bird for it to dustbathe in, if the original substrate did not promote dustbathing.

That is the D-E-R part of the process. When the S-P-I and the D-E-R are combined, the ultimate outcome is that you will hopefully get a better Christmas present from Auntie Joy next year, and that the animals under our care receive highly effective enrichment initiatives. In terms of the art of animal care, you do a lot of the evaluating and readjusting already. What the more systematic approach to documentation, evaluation and readjusting provides is a way to share the information that you find out, to build a solid knowledge base that others can use. Never having seen any dustbathing by your birds using one type of substrate, you may try several different substrates. One type may have promoted too much ingestion, and another may have been too dusty. Part of the documentation process involves recording this type of information so that others can see for themselves what does or does not work for those animals. You might also be able to note who ate the substrate, when that previous type was used, and whether all of the birds are using the most current substrate for dustbathing.

Based on the information that you currently collect, if your animals were moved to another institution, would you be able to provide a record of what enrichment was effective and what was not? If a new keeper joined your team, would he/she be able to study what you had tried in the past, and understand the outcomes of these trials? Hopefully, the documentation and evaluation process should ensure that this information exists in some form or another (numbers, diagrams, graphs, photos, noteworthy events, etc.).

An effective enrichment process is key to ensuring that the welfare of the animals under your care is good. The enrichment process is also something that many different departments of a zoo or aquarium can become involved in, and is a great staff motivator. Whether or not Auntie Joy will ever actually use the SPIDER model to give you better presents, it is nevertheless a great way to provide excellent animal care.

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Piping Plover (*Charadius melodus*)

By Karen Rabideaux, Zoo Keeper
Milwaukee County Zoo, Milwaukee, WI

The piping plover is a small stocky shorebird whose head and back are the color of dried sand with white undersides. The plovers reside along sand and gravel beaches of alkali lakes and rivers that lack vegetation and along the wetlands of prairies. Their range includes three distinct geographical populations. (1) Atlantic Coast population—East Coast of North America from Newfoundland to South Carolina. (2) Great Lakes population—Great Lakes area of United States and Canada. (3) Interior population—Northern Great Plains in the United States and Canada. Piping plovers are migratory birds moving south to the Gulf of Mexico, along the Atlantic Coast (the Carolinas, Georgia, and Florida) to Mexico and in the Caribbean. They are listed as endangered in the Great Lakes region and threatened in the remainder of their range.

The piping plover has only been in a captive zoological setting for six years. In June of 1995, staff from the Milwaukee County Zoo (MCZ) and Lincoln Park Zoo (LPZ), Illinois joined the United States Fish and Wildlife Service and the Army Corp of Engineers in a rescue effort. Piping plovers in North and South Dakota were in danger of losing nests to the Missouri River flooding. A total of 30 eggs were recovered and brought back to the MCZ and LPZ. Each zoo took 15 eggs for artificial incubation. The MCZ successfully hatched and hand-reared ten piping plover chicks from the 15 rescued eggs. Currently, the MCZ has three piping plovers (a female and two males). There are a total of ten birds in five institutions at this time.



Male piping plovers at Milwaukee County Zoo.

(Photo courtesy of Mark Schueber)

There is much we need to learn about the piping plover in a captive setting. Thanks to a working relationship with the U.S. Army Corp of Engineers—Threatened and endangered species program, we have been able to learn more about these birds in the wild. A captive rearing/release program has been developed and implemented for piping plover and least tern eggs that are jeopardized by flooding on the river. Each spring the Army Corp of Engineers releases water from Gavins Point Dam and other dams along the Missouri

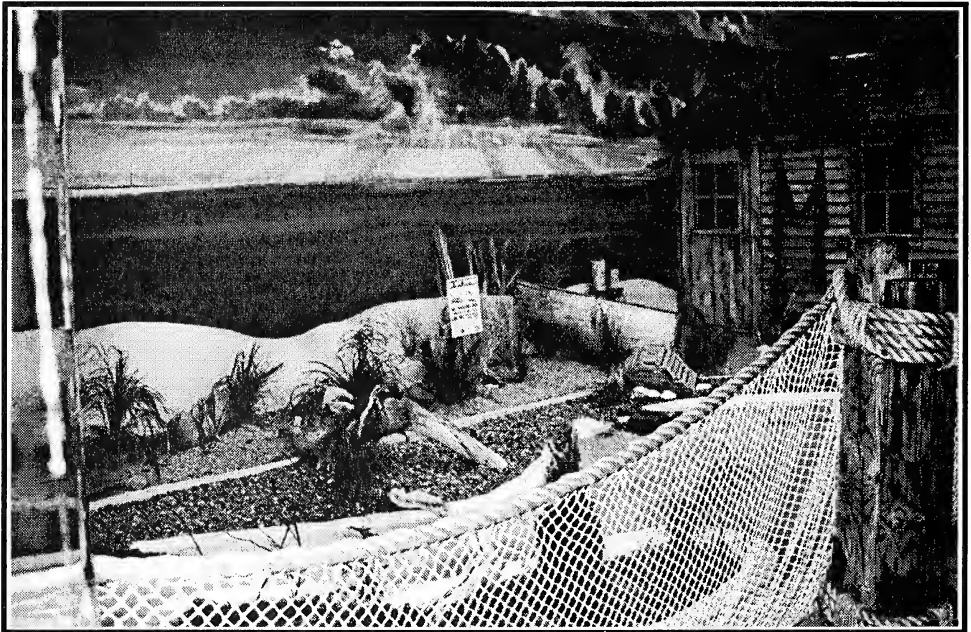
River. These planned water releases often flood piping plover nests. The captive rearing/release program started in 1995 due to the dam releases, excessive snow run-off, and heavy rainfall.

From 1995-2001: 146 nests were lost to inundation
535 eggs (177 nests) were collected
424 eggs hatched
399 birds released

Hatching success has been ~79%, while release success has been ~94%. Since 1998, there have been 52 re-sightings of captive reared birds on their wintering grounds.

The Army Corp of Engineers conducts surveys all summer to monitor plovers fledgling along the river. The MCZ has sponsored my involvement with the Army Corp of Engineers the past couple of summers. From my experiences on the Missouri River, the aviary staff concluded that our husbandry of these birds needed to change. We wanted to achieve a more natural setting for the birds to increase behaviors I observed in the wild. Our plovers rarely, if at all, vocalized. We also observed no territorial displays/threats between our males. In fact, they were frequently seen sitting in close proximity to each other rather than near the females. We also wanted to create a better wading area for the birds.

Exhibit design was the first task. The exhibit is approximately 40ftL x 8ft W x 18ftH (12.2mL x 2.4mW x 5.5mH). There is a large pool that spans the entire front half of the exhibit. Originally, the rest of the exhibit was a fine sand substrate. Plants, pieces of driftwood, and numerous other props adorned the exhibit. We were having numerous foot problems with dry cracked feet and legs. The birds appeared nervous and were observed pacing the back wall. The decision was made to give the exhibit a facelift. All of the sand was removed. A coarser type of sand, masonry torpedo sand, was added to half of the substrate area. Timbers were placed to separate the substrate area into two sections. The other section was filled with small stones. The stones were added to increase the birds wading opportunity. The pool was fairly deep and difficult for small shorebirds to use areas beyond the pool's edge.



Shorebird Exhibit at Milwaukee County Zoo.

(Photo courtesy of Mark Schueber)

Feed sites were placed on the stone banks in the water to encourage the birds to enter the water to feed. This served two purposes: 1) encourage birds to enter water to help leg problems 2) encourage natural foraging behavior in water which provides enrichment for the birds. Artificial plants were added to the exhibit to provide additional cover. Live beach plants had not been successfully cultivated in the exhibit due to light levels. Experimentation continues with live plant species by the Aviary gardener. Several species have thrived in the exhibit recently. These are *Picea conica* (Alberta Spruce), *Juniperus communis* (Common Juniper), *Pinus resinosa* (Norway Pine), and *Liriope spicata* (Liriope). New pieces of driftwood were collected around Lake Michigan to give the exhibit a true shoreline effect. Also small pier pillars were placed into the exhibit for added aesthetics and to provide additional barriers.

Finally, a posted sign that warns people of entering a sandbar during the plover nesting season was added to the exhibit to increase awareness about the plovers plight. This sign was donated by the Army Corp of Engineers. It is the same sign used along the Missouri River. By adding this sign, we have noticed some very positive feedback. For example, a family noticed the sign in the exhibit and reacted negatively. They had encountered a similar sign along the Atlantic Coast while vacationing that had prevented them from accessing a beach. After reading our graphics about the plover program, they started to talk about the birds in a more positive manner. As they were departing the exhibit, we heard them saying "That is why we couldn't go on that beach. Did you see the birds?"

The "Do Not Enter" sign has been an excellent educational tool. It has provided an eye catcher in the exhibit to draw the public into the graphics. The Shorebird exhibit is one that has seen improved graphics within the last year. The graphic discusses the piping plover program and what a person can do to help. We have also made the piping plover one of the mascots for our annual Migratory Bird Day.

The plovers are housed with 0.2) Black-necked stilts (*Himantopus mexicanus*, 0.1 American oystercatcher (*Haimatopus palliatus*), and 0.1 Egyptian Plover (*Pulvianus aegyptius*). When the plovers begin to show signs of coming into breeding plumage, a mock migration occurs within the building. The female is moved first to the holding exhibit. The males follow a few days later. The birds remain in this "migration" exhibit for a couple of weeks. They are moved back to the Shorebird exhibit with the males going first to establish territories. The female will be moved a few days later. We have found that the mock migration reduces stress levels of the birds (i.e. migratory restlessness). Before incorporating this mock migration plan, the birds were more prone to flying out of the exhibit increasing their already high stress levels. It is suspected that the birds experience chronic stress due to migratory restlessness. The birds that have died in captivity over the past few years have always died during Fall or Spring migration. One of our females died during the Fall season. She had no other symptoms aside from an enlarged adrenal gland. The pathologist suggested the main cause of death was chronic stress due to her migratory restlessness. We also started a mock migration to try to get more natural breeding behaviors.

There is a pair bond between the female and one of the males. In the wild, there is a lot of competition for a good nesting site. Our additional male has served as competition to the male of the pair. The additional males presence has resulted in threat and aerial displays for territory. These are important behaviors for breeding that have not been observed prior to mock migration and keeping two males with a single female. Courtship behaviors observed include throwing stones, vocalizations, wing flapping, butt presenting, and making scrapes. As mentioned before, none of these behaviors were observed prior to the changes we have made.

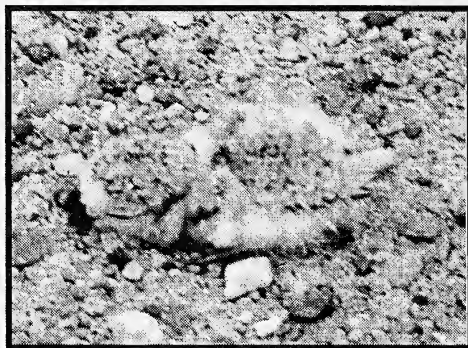
Diet has been and continues to be an obstacle. In the wild, the plovers would eat insects found along the shore especially those with exoskeletons. In captivity, this type of diet is difficult to replicate. They are offered a fish mix which includes: blended silversides and capelin added to flamingo fare and soaked dog chow. We have supplemented their diet with black worms, leaf worms, rice beetles, and pinheads. We are also looking into trying to capture insects around zoo grounds as a possible food item. The insects will be tested first for pesticides, etc.



Sign stake along the Missouri River in South Dakota
(Photo: Karen Rabideaux)

In 2001, we did have two clutches of three eggs (Typical clutch size is four eggs). They were all infertile. The pair bonded well and made several nest scrapes before laying. The female did not incubate the first clutch, but did incubate her second. During this time, the additional male had to be moved from the shorebird exhibit. The male of the pair had increased the pair's territory via threat displays. The additional male eventually had such a small territory that food and water were no longer available in his space. The decision was made to move him to the migration exhibit for the rest of the breeding season. We are optimistic about the future of this pair. We hope that next year will be the piping plovers year for chicks. We are looking into several other tactics to promote breeding. By far, the plovers have benefited from the working relationships formed between everyone here.

The MCZ has been active in the plover program outside the zoo. Our research involvement started with radio transmitters. Ms. Robyn Niver asked for the zoo's assistance in trying out a prototype transmitter. Ms. Niver was working on her Masters Degree through the University of Wisconsin-Madison with the help of the Army Corp of Engineers. The prototype radio transmitter was fitted onto one of our birds. From this union, I was introduced to Mr. Casey Kruse and the Gavins Point Threatened and Endangered Species program. My involvement on the river has been beneficial to both captive and wild operations. I have become increasingly proficient at spotting birds on the sandbars with each progressive year. This year the Army Corp of Engineers has asked for my assistance during census and the zoo has agreed to fund this trip. The Great Lakes region also saw keeper assistance from several institutions, including the MCZ. These zookeepers assisted with the captive rearing component of their salvage egg program.



Piping plover chick on Missouri River sandbar

(Photo: Karen Rabideaux)

As a zookeeper, I feel my job is not limited to the institution that I work for. I have enjoyed being part of a conservation effort that involves so many people who truly care for the species. We hope our experiences will spark new ideas for the animals in your care. Numerous opportunities exist for zoos and keeper staff to become involved in piping plover conservation. For more information on becoming involved in piping plover research activities contact: Kim Smith, Curator of Birds, Milwaukee County Zoo, AZA Piping plover Specialist Group Chair, E-mail: ksmith@milwcnty.com Phone: 414-256-5457.



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- Ms. Nell Phillips, USFWS

Piping plover decoy made at Milwaukee County Zoo

(Photo: Karen Rabideaux)

Legislative Update

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EPA Seeks to Modify Endangered Species Consultation Process for Pesticides

The U.S. Environmental Protection Agency (EPA), the USFWS (USFWS), and the U.S. National Marine Fisheries Service, in consultation with the U.S. Department of Agriculture, are seeking comments from the public and affected parties on how the Endangered Species Act consultation process can be made more effective and efficient with respect to pesticide registration actions. Under the Endangered Species Act, EPA must ensure that registration of pesticides will not jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat. Improving the consultation process will directly benefit listed species and their habitat by ensuring that the potential effects of pesticides are examined in a timely and comprehensive manner.

The EPA routinely evaluates the potential effects of pesticides on wildlife. EPA also consults with the wildlife agencies about pesticide uses that may affect listed species. For many years the federal government has not systematically considered how to improve the efficiency of the consultation process. As a result of EPA's ongoing reexamination of previously registered pesticides, as well as recent litigation, the three agencies anticipate a significant increase in the number of future consultations. Thus, the three agencies have agreed to review and where necessary improve, the current consultation process so that timely regulatory decisions can be made that provide needed protections for species, without placing unnecessary burdens on farmers, homeowners and other pesticide users. These agencies are further coordinating this effort with the USDA to ensure that any modifications to the current processes or regulations take into account the need to consider the potential impacts on food and fiber producers. Similarly, the agencies are working to establish the most effective consultation process that will enhance stakeholder involvement and education around the endangered species protection efforts for pesticides.

Some examples of the types of information being sought by the EPA in accordance with federal rule-making procedures include:

- (1) Approaches to make the consultation process more efficient by eliminating redundant analyses and focusing on pesticide use patterns which appear most likely to raise concerns. For example, options are being presented where pesticides with similar characteristics could be evaluated together, thus adding efficiencies to the consultation and regulatory decision making process.
- (2) Consultation approaches that would involve the wildlife agencies only when EPA finds that a pesticide registration action is likely to adversely affect listed species. Otherwise, no further consultation would be required.
- (3) Procedures that focus and prioritize the wildlife agencies' reviews once consultation is deemed necessary, and gives appropriate consideration to EPA's scientific findings and protection strategies. Specifically, when consultation is needed, the wildlife agencies would determine whether EPA had considered the most current and best available data in their assessment, other convincing information warranting a different conclusion, and substantial evidence supporting EPA's determinations.

The Federal Register notice announcing this is available at <http://www.epa.gov/fedrgstr/index.htm>. More information can be found on the EPA's Endangered Species Protection Program website at <http://www.epa.gov/espp/>. Source: USFWS News Release 24 January 2003

USFWS Program Proposes Coordination of All Aquatic Animal Drug Applications to the FDA

A national partner-based program designed to manage all aspects of drug submissions to the Food and Drug Administration for use in federal, state, tribal and private aquaculture programs has been established in the USFWS's National Fish Hatchery System. Public and private aquaculture in the United States has been hampered for years because of a severe shortage of FDA-approved drugs for use in aquatic species. This Service-directed program - the Aquatic Animal Drug Approval Partnership - will go a long way to correct that situation.

Currently, only a handful of drugs are approved for use in aquatic species, and use of those is restricted to life stages of certain species. That situation has jeopardized the health of aquatic species held in captivity, including those that are key to restoration, recovery and management activities undertaken by the Service and the agency's partners. A spokesperson for the USFWS stated that successful control of treatable diseases in all animals, including humans, requires having more than one drug available for any given ailment because reliance on a single drug may quickly render that medicine ineffective.

Public aquaculture facilities and private fish farms in the United States now raises more than 100 species of aquatic animals, and FDA-approved drugs to treat disease in the majority of these species are non-existent. The Service program will provide the means to assist all federal, state, tribal and private aquatic animal culturists in meeting animal disease-management requirements.

The AADAP program will lead a coordinated effort to gather data, analyze results, compile final study reports, disseminate information and manage all other aspects that are required of submissions to the FDA to support new animal drug approvals for aquatic species. The program builds on a long-standing partnership between the Service's National Investigational New Animal Drug Office in Bozeman, MT, and more than 50 federal, state, tribal and private agencies and organizations. The AADAP program will help expand the work of the Bozeman facility and will lead a national effort to assemble the complex data packages required by the FDA for new aquatic animal drugs.

The President has emphasized citizen-centered, results-oriented and market-based objectives in partnerships of the specialized and limited market for fish culture drugs. However, the cost of the applied research and development needed for FDA approval often prevents pharmaceutical companies from conducting the research. The new partnership led by the Service allows the R&D costs to be spread among the states, tribes, and private aquaculture community that benefit. R&D results allow the pharmaceutical companies to complete the application and approval process, and manufacture the approved drugs at an affordable cost. *Source: USFWS Press Release 5 February 2003*

President Bush Seeks \$1.3 Billion Budget for USFWS

President George W. Bush's almost \$1.3 billion 2004 budget request for the USFWS represents a purportedly continuing commitment to protecting America's natural resources and supporting community partners in conservation. Among the key features of this budget package is a \$25.5 million increase to care for the National Wildlife Refuge System as it embarks on its second century and a continued commitment to conservation partnerships through the Cooperative Conservation Initiative. Strong budget increases in such areas as Fisheries and Migratory Birds help to round out a package that will benefit the Service, its many partners, its trust lands and species, and the American public.

"This budget demonstrates the President's commitment to managing and conserving the natural resources that belong to all of the American people in partnership with others," said Interior Secretary Gale Norton. "While other events on the national and international stage might grab the headlines, this Administration continues to support the often unsung collaborative work that protects and enhances our fisheries, strengthens our National Wildlife Refuge System, recovers species, and increases opportunities for citizens across our country to enjoy their public lands."

The 2004 budget continues the Secretary's vision of cooperative conservation through a revised Cooperative Conservation Initiative that focuses on existing successful programs that build resource protection partnerships. The Service's Partners for Fish and Wildlife, North American Wetlands Joint Venture, Coastal and Refuge Challenge Cost-share programs are all included in this year's Cooperative Conservation Initiative. The budget provides \$15 million in increased funding for these programs, including \$9 million for Partners, \$3 million for Joint Ventures and \$3 million for Refuge Challenge Cost-share.

The Fisheries program is to receive almost \$104 million under the Administration's budget request. This represents an increase of nearly \$9 million over the 2003 budget to help implement the program's "Vision for the Future." This figure includes \$5 million to carry out priority fisheries recovery and restoration activities.

Last year's discovery of the invasive northern snakehead fish in Maryland waters focused national attention on the risk of such introduced species to our waterways and to the native fish that depend upon them. The Administration's 2004 budget request recognizes such threats, and includes an increase of \$1 million for the control of aquatic invasive species, such as Asian carp in the Mississippi River drainage and Asian swamp eels in Florida's Everglades.

Building on last year's historic \$57 million increase, the President's budget asks for a \$25.5 million increase to help the National Wildlife Refuge System protect its trust resources, improve public access to recreation, and better serve surrounding communities. Refuge Operations funding increases will address the highest priority operation and maintenance needs with an increase of \$11.6 million over the 2003 budget. Additional requests include \$5 million toward start-up costs on new and expanding refuges (including Vieques and Don Edwards); increased funding (\$2.1 million) to combat invasive species on refuges (including nutria, the invasive tamarisk cedar and the giant aquatic salina fern); support for the development of additional Comprehensive Conservation Plans (\$2 million increase); and \$500,000 to take proactive steps toward controlling the advance of Chronic Wasting Disease on refuge lands.

Increased funding is also requested to meet the resource protection needs of the Endangered Species program and to address its growing litigation-driven workload. Additional funding (a total of more than \$3 million more than last year) will be available to address listing actions required by court order or settlement agreement. And, recognizing that the goal of the Endangered Species Act is not listing but recovery, the President has requested a \$2 million increase to fund recovery actions needed to stabilize populations of critically imperiled species, as well as to provide the final "push" needed to achieve the delisting of species that are already approaching full recovery.

The requested budget for Law Enforcement is almost \$53 million. The budget reflects an increase of \$1 million that will allow the hiring of nine additional wildlife inspectors in order to better control the illegal trade in protected species. Manatee protection efforts in Florida will also be supported by a \$500,000 increase in funds to decrease the risk of boat strikes and enforce waterway speed zones on refuges and in sanctuary areas. The requested budget for land acquisition is reduced by \$29.6 million. This reduction reflects the Administration's commitment to properly care for the lands already in the National Wildlife Refuge System.

The President's 2004 budget continues to support active participation on the part of the States and other partners in resource conservation efforts. To this end, the budget provides \$246.2 million for five Service grant programs that facilitate State and local conservation efforts. Recognizing the opportunities for conservation of endangered and threatened species through partnerships with private landowners; the budget includes \$50 million to continue the Landowner Incentive and Private Stewardship programs. While decreased by \$2 million from 2003, the \$87 million request for the Cooperative Endangered Species Conservation Fund provides an additional \$2 million for Habitat Conservation Plan planning assistance, and is an increase of almost 300% above the 2000 funding level.

Multinational Species Conservation Fund requested budgets will, for the most part, remain constant with those of 2002 and 2003, with \$1 million each going to support international efforts to protect African elephants; rhinoceroses and tigers; Asian elephants; and great apes. The exception is an increase of \$2 million over the 2003 budget to implement additional neotropical migratory bird conservation projects in the Western Hemisphere. *Source: USFWS News Release 3 February 2003*

CITES Approves New Standards for Trade in Appendix II Wildlife

At the CITES Convention held in November 2002, the parties expressed concern that export permits are often granted for Appendix II species to enter trade without the benefit of effective "non-detrimental" findings. As a result, The Animals and Plants Committees of CITES issued a specific mandate to identify Appendix II species that are subject to significant levels of trade and to evaluate whether this trade could be detrimental or not. The mandate is encompassed in a resolution adopted by a majority of CITES members which is titled Resolution Conference 8.9: "Trade in Specimens of Appendix II Species Taken from the Wild." It is hoped that the trade review process, if implemented correctly, will act as a safety net by ensuring that species do not decline while they are listed on Appendix II.

The review process under the new Resolution contains several stages. First, The Animals and Plants

Committees will review data from the CITES database to identify species that are traded at significant levels. The Committee and the countries to which the species are native then compile a list of species of priority concern. If the Committee is satisfied that trade is not having a deleterious effect on the species it is then eliminated from the review process. Secondly, assuming that there appears to be a danger of depopulation, the Committee will review all the information and put the species into categories for action: "species of urgent concern" (where data shows trade procedures are not being followed); "species of possible concern" (where it is unclear whether non-detrimental findings are being properly applied or not) and; "species of least concern" (where trade is evidently not a problem; these species are then eliminated from the review process).

For species of urgent concern, recommendations proposing both short and long-term actions to address problems with addressing the "non-detrimental" findings will be formulated. These may include administrative procedures, cautious quota or temporary export restrictions, application of adaptive management procedures, or conducting status assessments or field studies to provide interim solutions appropriate for the regulation of trade. The CITES Secretariat, in consultation with the Chairman of the Animals or Plants Committee determines whether the recommendations have been implemented and then reports the findings to the Standing Committee. The Standing Committee then decides on appropriate action and makes recommendations to the country concerned or, if appropriate, to all Parties.

CITES states that when viewed in overall terms, the significant-trade review process ensures that the Convention can achieve its objectives through a multilateral process involving a high degree of consultation and cooperation with the member countries concerned. The significant-trade review process can result in punitive measures where there are problems with implementation of the process. Furthermore, the use of the significant-trade review process generally removes the need for importing countries to apply stricter domestic measures (such as import bans or externally-imposed export quotas for member nations) on a unilateral basis. Finally, another positive feature associated with the process is the fact that it can result in individual exporting countries being assisted to undertake field studies as well as develop the technical and administrative capacity necessary to implement the "non-detrimental" findings if such are currently lacking. *Source: CITES World; Official Newsletter of the Parties Issue 10, 2003.*

Sea Otters Among First to Benefit from SARA

Developing a recovery strategy for sea otters off the coast of British Columbia will be among the first measures the Canadian government takes to full fill requirements of the nation's newly enacted federal law protecting endangered species, the Species at Risk Act reports the *Environmental News Service*. The sea otters have been identified as threatened since 1996, and scientists say that an oil spill from the hundreds of tankers that ply the coastal waters is the "most serious threat." As part of an "action plan," the recovery team wants to put in place an "oil spill response plan specifically for sea otters" and ensure that there are "sufficient funds, equipment and personnel" to carry it out. *Source: GREENlines Issue #1788 1-27-03*

Manatee Boat Deaths at All Time High

State wildlife officials in Florida released figures showing that while total manatee deaths were down slightly in 2002, the number known to have been killed by boats reached an all-time high, according to the *St. Petersburg Times*. Although the number of manatees dying of cold stress, during birth or from undetermined causes declined from 325 in 2001 to 305 in 2002, deaths by boat reached 95, up substantially from the previous all-time high of 82 in 1999. Manatee advocates said the numbers show more protection is needed and underscore the importance of continuing settlement negotiations over a federal court's mandate to increase protective measures. Biologists are also worried that the possible closing of Florida's aging coastal power plants would harm some manatees who depend on their heated water discharges for warmth in the winter says the *Gainesville Sun*. With many of the old power plants slated for upgrades, decommissioning or replacement conservationists warn "a quick loss of a power plant could have pretty dramatic effects on large numbers of manatees," especially since the number of natural warm water springs are "shrinking, threatened by pollution and increased consumption." *Sources: GREENlines Issues #1778 1-10-03 and #1779 1-13-03*

2002 Conference Proceedings Order Information

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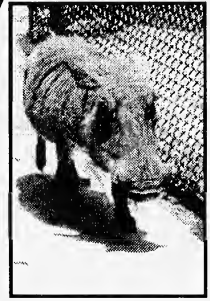
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"THIS LITTLE PIGGY HAD A HOOF TRIM"

Training a Warthog for Hoof Work

By Pilar Hicks, Keeper
Disney's Animal Kingdom
Lake Buena Vista, FL



Introduction

Several species of hoofstock experience problems with a variety of hoof conditions due to many factors including genetics, inadequate substrate, and nutritional deficiencies. When chronic conditions occur, typical treatment is physical restraint or chemical immobilization of the animal to examine and treat the affected hoof. Often times, this may lead to multiple immobilizations to treat the hoof properly. At Disney's Animal Kingdom (DAK), one of the adult female warthogs (*Phacocoerus africanus*) had an outer wall separation of the front left, lateral hoof. Kicha's condition was deemed chronic and one that would need much attention and care throughout her life. Because of the ease with which she could be trained, she was deemed a good candidate for attempting hands-on hoof examination and trimming, through operant conditioning. Our goal was for the training program to eliminate or at least substantially reduce the need for numerous chemical immobilizations and thus to prevent excessive stress on the animal. With patience and teamwork, we were successful in training a series of behaviors that allowed us to work on her feet in a protected contact environment. We currently work on her front hooves once a week. This paper will focus on how this training process was achieved by defining, testing, changing and discarding a variety of techniques in order for the hoof presentation and trimming behaviors to work for Kicha in a positive, non-invasive manner.

General History

DAK houses 1.2 warthogs; however, Kicha is the only warthog that has experienced hoof cracking and separation. Kicha was born in May of 1996. Before coming to DAK, Kicha broke her left, front leg when she was five months old. The leg was pinned and it healed well. However, we believe this injury may have contributed to the hoof separation as her hoof wears abnormally when she walks (presumably due to the early stages of arthritis). Our plans to condition the warthogs to hoof work were essential to monitor her condition.

When Kicha was chemically immobilized for her annual exam in March of 1999, we observed significant damage to her left front hoof. On daily checks we had seen some chipping and cracking, but once the decaying parts of the hoof were removed it was evident that she was experiencing hoof separation. This caused a pocket where debris (mostly dirt and feces) was impacting the hoof causing further infection and sloughing. The animal care team decided to take an aggressive approach in getting our hands on her hooves on a regular basis. And so began the quest to trim Kicha's hooves.

The Training Area and Equipment

We began training Kicha in a transfer chute area that contains a floor scale. The transfer chute connected the bedroom stalls with the outside paddocks. The sides of the transfer chute were equipped with vertical removable bars that allowed the keeper to access the animal (see Figure 1). It is important to remember the safety of the animals and the trainers at all stages of training when designing an access area. As training progressed these bars were lengthened to allow more maneuverability for the trainer.

A typical training session lasted from five to 15 minutes depending on the behaviors the keeper was working that day and the response of the animal. One apple and three to four pieces of monkey chow were used as rewards per daily session. The monkey chow was used as magnitude reinforcement for a great response or at the end of a long behavior (e.g. dremmel trimming or rasp work). There

was also a wooden box positioned within the chute that reduced the width of the chute and allowed the animal to remain within reach of the keeper.



Figure 1. The training area with removable bars.

Training the behaviors

At DAK under the guidance of the Behavioral Husbandry Team, all teams are required to submit a training plan to their managers for approval. The training plan is a general outline of the steps the trainer will follow to accomplish the ultimate goal, including contingency plans based on the positive or negative responses of the animal. Kicha's easygoing attitude was the foundation of my plan, as in addition to food rewards, Kicha was already very receptive to tactile reward. She routinely laid down and over on her side while being brushed and rubbed (see Figure 2). While still in protected contact per our training plan, we began manipulating her front and back feet while she lay in this position. Her front feet were much more sensitive than the rear feet. She allowed her primary trainer to rub them; however, it was for short periods of time, often pulling her foot away to avoid the touch. We worked to increase the length of time she remained still while manipulating her feet. While this was great progress in the training, Kicha remained leery of people present other than her primary trainer while she was in this position.

The introduction of a second person became vital to our training plan, and Zoological Manager, Steve Castillo, was chosen. His role was to trim and work on her hooves on a regular basis and to become the second trainer. Twice a week, he initially came down to watch and then to integrate into the training program. As Kicha saw him more frequently, she relaxed and accepted him manipulating her feet. Eventually, Steve was able to apply a Hoofshield® conditioner to her front hooves in the down position once a week. (Hoofshield® is a conditioning liquid that aids in strengthening the hoof wall.) We hoped this conditioner would decrease the amount of chipping. Steve was also able to minimally trim the front hooves while the warthog was in this position. Kicha was very calm and remained steady during this phase of the process. However, as more invasive filing and trimming began, Kicha did not stay in her down position. She continually retrieved her leg or got up and left the area. It was decided that this position was no longer safe for the animal or the trainers given our long-term goals.

In the new position, Kicha was trained to sit directly facing the trainer. This was found to be an easier way to apply the Hoofshield® conditioner on her front hooves. While the primary trainer fed her, keeping her head up, another person (usually Steve) applied the Hoofshield® and examined the hoof noting any new chips or sloughing. Kicha was notably more comfortable in this position,

presumably because she could see all people present. One day, I pulled Kicha's left front foot up onto the ledge of the door to get better access and visibility of the hoof. Kicha responded well to this new position and we added this component to our training plan. This worked well as the trainer could gently hold the leg on the inside of the training bars without interfering with the examiner's grasp of the hoof on the outside of the training bars. This behavior was called "Foot Up" as illustrated in Figure 3.



Figure 2. Kicha being brushed in the down position.



Figure 3. Foot up position rinsing the hoof.

A variety of rasps were introduced to Kicha and seemed to have very little effect on her. It appeared that as long as she was getting rewarded for staying in position, she was comfortable with keeping her foot up. These rasps were the key to getting a handle on the sloughing of the outer wall. A wood block was cut to fit between the training bars to elevate Kicha's foot. This enabled Steve to file the hooves with the rasp without the ledge of the door interfering in the work.

While the sloughing of the hoof slowed, we occasionally saw small chips that quickly deteriorated the hoof wall. It was decided to attempt to introduce a dremmel tool to file the rough edges that could be catching or snagging while she walked. Kicha did not react to hearing the dremmel for the first few times and she seemed comfortable when Steve filed her foot for the first time with it (see Figure 4).

Once the hoof area was cleaned and filed, there were still small divots that sometimes filled with debris. We applied acrylic to these areas to prevent impaction or infection. The amount of time that the acrylic remained on her foot varied [four days was average]. We noticed that the drying time for the acrylic was dependent on humidity levels and temperatures of the day. We introduced Kicha to a hairdryer (again, with no reaction from Kicha) to quicken the drying time of the acrylic allowing the chemicals to bond more strongly (see Figure 5), and saw an increase in the amount of time the acrylic remained on with this process. Yes, we were running one heck of a beauty salon but we did stop short of painting her nails!



Figure 4. Using the dremmel

Kicha's diet was supplemented with Biotin® to help initiate wall growth.

The direct effect on the hoof growth

was hard to determine as we began hands on work with her feet simultaneously. She was also put on Cosequin® to treat the effects of the arthritis. We believe the combination of the diet supplement, joint promoter, and the hoof work has allowed the hoof to grow out and wear normally. To date, Kicha's left front hoof has grown out nicely and maintenance work is done once a week.



Figure 5. Using the hairdryer to set the acrylic.

We now have expanded the hoof work to include rear hooves and dewclaws. As stated at the beginning of the paper, her front feet were the most sensitive in the down-over position. In contrast, the rear feet were not particularly sensitive (see Figures 6a-c). With Kicha lying on her side, I rubbed her chest and stomach, while Steve used a rasp, dremmel or snippers to work on the hind feet. No food reward was given during the trimming; the reward was completely tactile. When Steve was finished with the hoof work, she was given pieces of apple and monkey chow. Currently, she remains in position for about two minutes and we are working on extending that time.

We now know what works and what doesn't work for hoof work as it relates to our access area and the tolerance levels of the animal. People often ask "How long did this take to accomplish?"

Overall, the time frame was approximately six months but the majority of that time was spent looking for the best positioning and access to the feet. Kicha was easygoing and accepting of most things immediately. It was often my apprehension of progressing too fast that slowed some progress such as the introduction of the dremmel and the hairdryer. She has been an extraordinary animal.



Figure 6a. Kicha in the down position.



Figure 6b (above). Checking the rear hooves for any damage.

Figure 6c. (at right) Using the snippers to trim rear dewclaws.



The primary thing I have learned from this training project is that you never know what you can achieve unless you try. The original goal of this project was to file the hoof weekly with a rasp in order to prevent further sloughing. With the cooperation of the warthog training team and Kicha, we were able to take this goal to many levels. To see other examples of husbandry training at Disney's Animal Kingdom as well as information about planning and documenting training sessions, see www.animaltraining.org

Acknowledgements

A special thanks to Steve Castillo for all of his contributions to this training project. His devotion and enthusiasm were constant throughout this evolving process. I would also like to acknowledge the warthog training team and the Behavioral Husbandry Team for their ideas and support.

Photos by Maureen Leatherberry and Wendy Ott.



Book Review

Introduction to Animal Technology (Second Edition)

Edited by Stephen W. Barnett 2001

Iowa State University Press, 2121 State Ave., Ames, IA 50014-8300

ISBN# 0-632-05594-4

112 pgs. paperback illustrated \$39.99

*Review by Penny L. Jolly, Zookeeper
Kansas City Zoo, Kansas City, MO*

This book has been revised from the original edition, entitled *Principles of Animal Technology*, and includes developments in animal technology that have occurred in the last 12 years. It encompasses aspects of the care and use of animals in scientific procedures including research, animal health, housing and environment, routine care, feeding and watering, breeding and development, handling and identification. The text is meant primarily as an introduction for people working in a laboratory setting, but I found many points that also apply to a zoo environment.

The book begins with the evaluation of each animal's health. What may come as second nature to a seasoned animal keeper may sometimes be taken for granted. New keepers are not always able to recognize signs of illness or what is normal. Factors that should be observed on a daily basis are included that would apply to all species.

The caging and housing chapter of the book lists caging materials and their properties; construction, cleaning, insulating, durability, ventilation, protection for animals or personnel against disease and contaminants. "Man controls all aspects of the living conditions of the animals and, as such, is totally responsible for their environment...all animals suffer if staff are uncaring or unobservant." I was glad to find enrichment was also covered including presentation of diet depending on whether the animals is arboreal or ground dwelling. Photo periods, sensitivity to noise and temperature were also addressed.

While the text is very dry, it is very thorough. The identification of individual animals and sexing is very complete with many color photographs helping to identify sexing and handling techniques to keep the animals calm. An example is always given with each experimental procedure given. Chapters that inform about procedures that may harm an animal always state the information is not intended as an instructor's manual and procedures should only be carried out by licensed personnel.

There are many aspects of the book that do not apply directly to the zoo field, but it could still be a useful reference for zoos or individuals housing colonies of mice, rats, or small educational animals.

Nashville Zoo Chapter of AAZK

The Nashville Chapter of AAZK had an eventful and successful first year of existence in 2002. We held several fundraisers throughout the year that resulted in \$1600 being donated towards our zoo's involvement in the Clouded Leopard Project in Thailand, including providing \$200 for crates. We provided over \$1300.00 for Parc Ivoloina in Madaggar, where we adopted a keeper and purchased uniform patches for employees. We gave \$100 to a feline rescue organization that began caring for a confiscated lion we initially housed. And we were able to provide conference money for member Heather Haigh to attend the annual AAZK Conference in Kansas City where she presented not one, but two papers.



Our main fundraiser for the year was the Junior Zookeeper program offered to 10-14 year olds. For a small fee, students spend three hours with keeper staff, learning the ropes and seeing behind the scenes. We also collected almost \$700 from visitor donations for the clouded leopard project. We were able to purchase a spiral wishing well, which we are certain will continue to generate income for our many planned projects.

One of our local service projects is "Adopt-A-Highway" through the Tennessee Department of Transportation....we were able to adopt a two-mile stretch of Hwy. US-31/Nolensville Rd. that runs right in front of the zoo. After our first of four annual trash pickups, we were rewarded with two signs announcing "Nashville Zoo AAZK Chapter" as the responsible party for that stretch of road.

Another project was bringing in guest speakers during the year. Talks were held after hours and were open to staff, docents, volunteers and friends' members. Speakers and topics included: Jo Gayle Howard and clouded leopard AI; Pete Riger and the Thailand clouded leopard project; our staff vet, Dr. Don Gillespie and his trip to

Chapter News Notes

South America to study anteaters; and our local Tennessee Wildlife Resources Agency representative, who spoke about the zoo's regulations and responsibilities from the state's point of view.

We recently held elections for 2003, and here are our new officers:

President: Karen Rice
Vice President: Loretta Werner
Secretary: Kate Sproul
Treasurer: Heather Haigh
Liason: Tori Mason

We are looking forward to an active and eventful year, and all 2003 has to bring!

--Tori Mason, Liaison



Little Rock AAZK Chapter

The Little Rock Chapter continues to work with Bear and Wolf Awareness Weeks, selling GlowLights® as our main fundraiser during Boo at the Zoo, and recycling at the zoo among other things.

By the way, we are still selling AAZK T-Shirts and Sweatshirts. T-Shirts are \$12 and Sweatshirts are \$20. Both feature AAZK rhino logo. (see ad in Sept. 2002 *AKF* page 360 or email dthompson@littlerock.state.ar.us for information on purchase)

We are a busy Chapter and there are no signs of slowing down.

We would like to thank our outgoing President, Steve Parker, and V.P. Karen Caster for their year of faithful service.

Our newly elected officers are:

President.....Daphne Brock
Vice President.....Kristin Harris
Secretary.....Marie Greene
Treasurer.....Britt Thompson

Stay tuned, you never know what we'll be doing next.

--Marie Greene, Secretary

AAZK Welcomes New Chapters

The Association is pleased to welcome two new member Chapters. They are:

Wildlife World Zoo AAZK Chapter

Members are from the Wildlife World Zoo, 16501 W. Northern Ave., Litchfield Park, AZ 85340. Their officers are:

President.....Robyn Barfoot
Vice President.....Jamie Maurer
Secretary.....Theresa de al Torre
Treasurer.....Mike Whitman
Chapter Liaison.....Beryl Patterson

Saint Louis AAZK Chapter

Members are from the Saint Louis Zoological Park, St. Louis, MO, and the Wild Canid Survival & Research Center in Eureka, MO. The Chapter's mailing address is at the Saint Louis Zoo, One Government Dr., St. Louis, MO 63110. Their officers are:

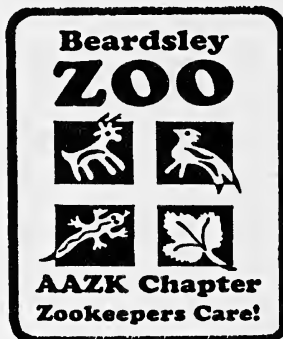
President.....Terri Hunnicutt
Vice President.....Tammy Schmidt
Secretary.....Christy Poelker
Treasurer.....Lynne Murphy
Chapter Liaison.....Sarah Christeson

What's your Chapter been up to lately? Drop a line to Chapter News Notes and fill us in on your activities and projects, new officers, your fundraisers, etc.

Beardsley Chapter AAZK

The Beardsley Chapter of AAZK recently made a contribution of \$1000.00 to the Butterfly Conservation Initiative. The Beardsley Zoological Society made a matching donation, and the Beardsley Zoo is now a founding member. The Butterfly Conservation Initiative supports the recovery of endangered and threatened butterfly species.

--Arlene Domkowski, Chapter Liaison



The Philadelphia AAZK Chapter

The new officers for 2003 are:
President.....Dawn Madzarac
Vice-President.....Ken Pelletier
Secretary.....Tanya Beverage
Treasurer.....Linda Cairnes
Liaison.....Catherine Vine

The Philadelphia Chapter had a successful year in 2002 raising over \$1,500.00 which was used to support 11 local, three national, and six international conservation organizations. In addition, we were able to support the Punta San Juan Reservation, a peninsula 300 miles south of Lima, which is home to large colonies of Humboldt penguins, fur seals, sea lions, guanay cormorants and Peruvian boobies.



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PHILADELPHIA CHAPTER

We are looking forward to a great year and will be trying

out some new fundraising ideas in addition to continuing with our Keeper Evenings, Keeping Up with the Keepers and the Annual AAZK Book Sale, March 5-9.

--Catherine Vine, Liaison

Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 10th of each month to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive their AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our Fax is (785) 273-1980; e-mail: akfeditor@zk.kscoxmail.com< Listing may be sent as MS Word attachment. We are no longer located at the Topeka Zoo, so please note new address to avoid delays in processing.

Zookeeper/Guide...Four (4) seasonal: one (1) position beginning immediately through December 2003; one (1) position April-October 2003; two (2) positions May-October 2003. Duties include, but not limited to, giving lectures to the public on various mammals and reptiles, participating in the daily feeding, care, maintenance and enrichment of mammals and reptiles. Must be willing and able to do physical labor, requires good oral communication skills, strong audible voice, neat appearance, and must work well with co-workers. Salary \$240 per week. Lodging, utilities and uniforms furnished. Hours fluctuate according to the season. Must be willing to work weekends and holidays May-October, six days per week. Off-season, five days per week. Send resumé to: Soco Gardens Zoo, Jim Miller, 89 Evans Cove Rd., Maggie Valley, NC 28751. Please include cover letter and letters of recommendation from immediate supervisors, preferably zoo-related.

Veterinary Technician...The International Crane Foundation invites applications for the Veterinary Technician position. Responsibilities include providing medical care for the captive flock of 120 cranes under supervision of the veterinarian. The candidate will also participate in veterinary support for endangered species reintroductions and international programs. Candidates must have a veterinary technical degree and certificate, and preferably experience in zoo, wildlife or avian health care and husbandry, and be competent in anesthesia/monitoring, radiology, animal restraint, laboratory procedures, MedARKS data entry, and inventory management. Competitive salary commensurate with experience. Applicants should submit a letter of intent, curriculum vitae, and the names of three (3) references to Susan Finn, International Crane Foundation, E-11376 Shady Lane Road, P.O. Box 447, Baraboo, WI 53913-0447; fax 608-356-9465, email sfinn@savingcranes.org. Applicant review will continue until the position is filled. ICF is an equal opportunity employer.

Herpetological Keeper...Riverbanks Zoo & Garden. To work as a member of Riverbank's Aquarium and Reptile Complex (ARC) team. Riverbanks maintains more than 500 amphibians and reptiles representing 100 different taxa. We are active in several international, national, and local conservation programs. Under general supervision, the Herpetological Keeper is responsible for the proper care of reptiles, amphibians, fishes, and invertebrates. Duties include: feeding animals; cleaning, maintaining, designing, and constructing exhibits; monitoring and maintaining life support and lighting systems; monitoring animal health and behavior and using proper enrichment and operant conditioning principles; maintaining detailed behavioral, reproductive, and medical records; taking proper measures to insure the security of animal enclosures; conducting tours of the Aquarium and Reptile Complex and presenting educational programs for school groups, college-level classes, and Society members. Participation in conservation/research is encouraged. This position reports to the Senior Herpetological Keeper. The salary for this position is \$10.14/hour plus a great benefits plan that includes participation in the South Carolina Retirement System. To apply please send your letter of intent and resumé to: Human Resources, Riverbanks Zoo & Garden, PO Box 1060, Columbia, SC 29202-1060. Or you can apply via fax at 803/253-6381 or email at jobs@riverbanks.org. For more information about Riverbanks and our job opportunities please visit www.riverbanks.org.

Service Opportunities or Internships... Interested in learning more about big cats and a career path? Consider a service opportunity at TCWR. Two (2) positions currently available at Tiger Creek Wildlife Refuge, Tyler, TX. Interns are utilized for animal care positions through a qualification system. Commencement date: Open. Duration: Month by Month. We provide: Room & Board, Materials and Curriculum, Indoctrination and Safety Training, Opportunity for full-time paid animal keeper positions (after training). See additional information and application at our website - www.tigercreek.org<

Aviculture Interns... for the Hawaii Endangered Bird Conservation Program at the Keauhou Bird Conservation Center (KBCC) on the Big Island of Hawaii and the Maui Bird Conservation Center (MBCC) on the island of Maui. Daily tasks include husbandry duties such as: diet preparation, aviary and facility maintenance, behavioral observations of breeding birds, grounds keeping, predator control. Applicant must be able to live with several roommates in a remote area and should show

enthusiasm for work with captive endangered Hawaiian birds. Applicant must have a valid driver's license and health insurance. Internships last for a 3-6 month period. Interns receive \$20/day stipend plus housing. For more information on internships at **KBCC**, please send a resumé, cover letter, and the names and contacts of three (3) references to: Tracey Goltz, P.O. Box 39, Volcano, HI 96785 or fax: 808-985-7034. **OR**, for more information on internships at **MBCC**, please send this information to: Mary Schwartz, 2375 Olinda Road, Makawao, HI 96768 or fax: 808-572-3574.

Avian Internship... Become familiar with daily activities involving our colony of African penguins, exotic birds, and reptile collection. Duties include food preparation, exhibit maintenance, and creation of enrichment devices. Candidates should be comfortable with public speaking and have course work in biology/psychology. Must be able to work outdoors and lift 50 pounds. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid. Interested candidates should submit a cover letter and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Kyla Fox, One Riverside Drive, Camden, NJ 08103.

Marine Mammal Internship... Learn daily activities involving animal care and training with our Seal Team. Duties include food preparation, exhibit cleaning, creating enrichment devices and observing training. Candidates should be comfortable with public speaking, have course work in biology/psychology, prior animal experience, be able to work outdoors, and lift 50lbs. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid. Interested candidates should submit a cover letter and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Nicole Begley, One Riverside Drive, Camden, NJ 08103.

Reptile Internship... The Kentucky Reptile Zoo, a nonprofit organization, is seeking a student intern for the 2003 Fall season. **The deadline for application for the Fall internship is 1 June 2003.** The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will **not be involved** in the handling of any venomous reptiles. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. The intern will be required to work both Saturday and Sunday, with days off during the week. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Interns have also been successful in finding zoo keeper positions, with a hire rate of over 95%! Benefits include experience with the most extensive and diverse collection of snakes in the United States, housing, and \$55/week to cover expenses. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March - May), or SUMMER (June - August), or FALL (September - November) is required. To apply send a cover letter, resumé, and at least two (2) (preferably 3) references to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L & E Railroad, Slade, KY 40376. Or send via email to: kyreptil@mailhost.mis.net

Deadlines for applications each year are: SPRING - February 15th; SUMMER - March 1st; and FALL - June 1st.

Environmental Interpretation and Wildlife Care Internship... At Trailside Museums & Wildlife Center, Bear Mountain State Park, Bear Mountain, NY. This internship will allow the qualified individual an opportunity to work in our museums/zoo/nature trail setting, matching academic and career interests. Responsibilities include: 1) provide care for permanently injured or orphaned wildlife (mammals, birds, fish, amphibians, reptiles) in zoo setting under the supervision of senior zookeeper; prepare food and diets; maintain enclosures and exhibits; practice enrichment; 2) Interact with the public answering questions, interpreting exhibits, possibly developing and offering short interpretative

talks. Qualifications: enthusiasm, comfortable handling animals, motivation to learn, 18 years or older, preference given to college student looking for experience in the care of wildlife and in environmental interpretation and acting as a friendly naturalist along the Appalachian Trail. Start: Summer Internship - mid-May through mid-August; Fall Internship - late August/early September through early November. Schedule: At least three (3) days a week, including at least one weekend day. Internships are not paid positions but knowledge gained and written evaluations gladly given; possible course credit if you can arrange it through your educational institution. No housing available. If interested contact: Environmental Educator, Trailside Museums & Wildlife Center, Bear Mountain State Park, Palisades Interstate Park Commission, Bear Mountain, NY 10911; phone: (845) 786-2701 ext. 293; email: barbara.thomas@oprhp.state.ny.us<

Internship Opportunities - National Aquarium in Baltimore

To apply for any of the following internship positions go online at www.aqua.org/education/internships to obtain an application form. A complete application includes contact information, answers to brief statements listed, and a copy of college transcript. All interns must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid. Complete applications should be sent to: National Aquarium at Baltimore-Internships, Pier 3/501 East Pratt St., Baltimore, MD 21202. Application Deadline: ongoing - 1 April 2003 for Summer and Fall 2003 terms; 1 November 2003 for January and Spring terms of 2004. For further information contact the National Aquarium in Baltimore's Internship coordinator at intern@aqua.org or call (410) 576-3888.

Aquarist Intern

The selected candidate will assist the Aquarium aquarist staff with daily care of the Aquarium's invertebrates and fish. *Essential Functions:* Assist with tank maintenance and cleaning; Prepare daily diets and perform daily feedings; Assist in the maintenance of back-up areas; Conduct precise record keeping; Perform special projects to be determined by the aquarist staff. *Requirements:* College juniors or seniors enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field. Must be able to lift 50 lbs, climb up a 6' ladder, and be able to squeeze across a 15' long x 12" wide platform.

Aviculture Intern

The selected candidate will assist the Aquarium aviculture staff with daily husbandry activities in the South American Rainforest exhibit. *Essential Functions:* Assist with and perform diet preparation and distribution; Conduct animal observations; Assist in the cleaning of holding areas, kitchen, and food prep areas; Provide enrichment to the aviculture collection; Perform special projects as determined by the aviculture staff. *Requirements:* Interest in working with birds. Enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science, or a related field.

Herpetology Intern

Duties: Tend the "Hidden Life" exhibits (large wall terrariums where small, neotropical lizards, frogs, snakes and invertebrates are on public display); Mist and clean the off-exhibit colony of small arboreal lizards; Mist, clean and otherwise help tend the large, off-exhibit collection of neotropical frogs; Prepare diets for and feed the on and off-exhibit iguanas and tortoises; Tend the locust (live food) colony, orb-weaving spiders and colonies of non-venomous exotic arthropods (wood and hissing roaches, millipedes and walking sticks); Assist in the maintenance of the live food cultures (fruit flies, springtails, crickets, rats, mice); Conduct and record animal observations; Perform special projects as determined by the herpetology staff. *Requirements:* Enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science or a related field. Must be comfortable working with frogs, lizards, rodents and terrestrial arthropods.

Horticulture Intern The selected candidate will assist the Aquarium horticulture staff with daily activities. *Essential Functions:* Assist with care of plants in the Rain Forest exhibits; Conduct plant maintenance, fertilization, propagation, and transplantation; Assist in display development; Perform special projects as determined by the horticulture staff. *Requirements:* Enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field.

Marine Animal Rescue Program (MARP) Intern

The selected candidate will aid in all aspects of marine animals rescue program (MARP) operations, which involves the rescue, rehabilitation, and release of stranded marine mammals and sea turtles and implementing outreach efforts of the Aquarium's Ocean Health Initiative. The selected candidate is also responsible for technical and clerical assistance for the Conservation Department staff as necessary. *Essential Functions:* Animal Care – participating in rescue and release trips, daily feeding,

medical treatments, facility maintenance including cleaning and water changes, behavioral observations, and record keeping; Outreach – learning to interpret the MARP artifacts and conservation messages and participation in seasonal outreach and public education programs at the Aquarium and off site; Other duties as assigned – field work, etc. **Requirements:** College junior or senior majoring in environmental science or related field with course work in biology and ecology. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work.

Marine Mammal Trainer Intern

The selected candidate is responsible for providing support to the marine mammal training staff. This internship's primary purpose is to teach the intern training theory. **There is limited hands-on animal contact during the internship.** **Essential Functions:** Prepares daily animal diets and dispenses vitamins as instructed; Responsible for the cleanliness and safety of all animal back-up areas; Assists in training, husbandry, and medical sessions; Participates in pre-show and pre-session preparations; Periodically participates in sessions involving swimming during enrichment and play sessions – no animals involved; Other duties as assigned. **Requirements:** College junior or senior majoring in life science or related field. Must have a basic understanding of marine mammal natural history. Must have good swimming skills. Must work well as a team member. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work.

Water Quality Lab Intern

The selected candidate will assist in the water quality testing of all fish and mammal systems throughout the aquarium. Duties include testing water for salinity, pH, ammonia, nitrite, alkalinity, and copper according to lab procedures, and recoding neat, accurate data. The selected candidate will work closely with the Lab Technicians and the Animal Husbandry staff. **Requirements:** College junior or senior with general biology and chemistry work. Strong math skills and computer proficiency preferred. Must be available to work mornings.

Positions posted with AAZK, Inc. may also be found on our website at www.aazk.org

Also, you may want to check out the AZA Member Institution job listings at <http://www.aza.org>

Shark Populations Crashing

North Atlantic shark populations are “down by 50% over the past 15 years,” with some species such as hammerheads “down by 89%” and others such as white and thresher sharks declining by 75%” says Environmental News Network/Reuters. Researchers blame overfishing for the plummeting numbers and scientists recommend immediate protection because the sharks are “extremely important to the marine ecosystem.” Worldwide, “as many as 100 million sharks are caught and killed each year either intentionally for their fins or as “bycatch” in fishing operations. Source: GREENlines Issue #1785 1-22-03

Polar Bear Extinct Within 100 Years?

Scientists warn that the “polar bear could be driven to extinction by global warming within 100 years” reports *BBC News*. With up to 9% of Arctic sea melting each decade, the polar region could be ice-free by mid-century, imperiling the polar bears which depend on sea ice to catch seals. Polar bears, which are a “species whose whole life history is dependent on having sea ice,” are “already starting to suffer the effects of climate change in areas such as Hudson Bay in Canada.” Source: *GREENlines Issue #1778 1-10-03*

Chinese Tiger “As Good As Extinct”

A “renowned tiger researcher and Conservation Director of the Minnesota Zoo” has concluded that the South China tiger, the rarest subspecies of tiger, is the “latest to become extinct in the wild” says the *San Francisco Chronicle*. In an as yet unpublished report, the scientist wrote, “Even if a few remaining individuals or small populations remain, no existing protected areas or habitat are sufficiently large, healthy or undisturbed enough to retain genetically or demographically viable (tiger) populations.” The Chinese tiger is being considered as the mascot for the 2008 Olympic Games. Source: *GREENlines Issue #1779 1-13-03*

AAZK Membership Application

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Full-time Keepers Only

\$35.00 Affiliate
Other staff & volunteers

\$35.00 Associate
*Those not connected with
an animal facility*

\$60 or up - Individuals
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Mail this application to: AAZK Administrative Offices, 3601 S.W. 29th, Suite 133 Topeka, KS 66614-2054. Make checks/money orders payable to AAZK, Inc. Must be in U. S. FUNDS ONLY. Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



**American Association
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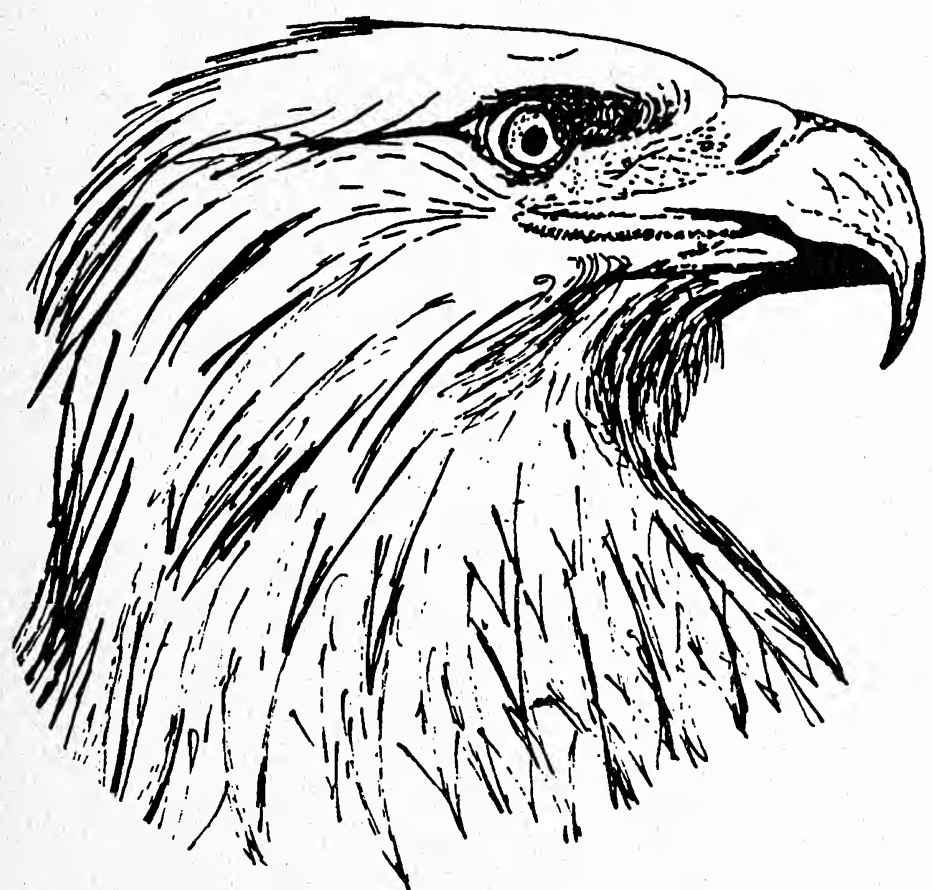
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ANIMAL KEEPERS' F O R U M



**The Journal of the American
Association of Zoo Keepers, Inc.**

APRIL 2003

Managing Editor: Susan D. Chan • **Associate Editors** • Gretchen Ziegler, Sequoia Park Zoo & Kayla Grams, Lovell, WY • **Enrichment Options Coordinators:** Jan Roletto, Eureka, CA & Dawn Neptune, Utah's Hogle Zoo • **Legislative Outlook Column Coordinator:** Georgann B. Johnston, Sacramento, CA. • **ABC's Column Coordinator:** Diana Guerrero, Big Bear Lake, CA • **Reactions Column Coordinator:** William K. Baker, Jr., Little Rock Zoo • **The Water Column Coordinators:** Dan Conklin and Kevin Shelton, The Florida Aquarium and Bruce Elkins, Indianapolis Zoo

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also serves as AAZK Liaison to the American Zoo & Aquarium Association (AZA)

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Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, Lake Odessa, MI

AAZK Enrichment Notebook - Lee Houts, Folsom City Zoo

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About the Cover.....

*This month's cover features a Bald or American Eagle (*Haliaeetus leucocephalus*) drawn by Ric Urban, Curator at Prospect Park Zoo in Brooklyn, NY. This species lives mostly near the ocean, rivers and lakes from Arctic Canada and Alaska to the Gulf of Mexico. It lives chiefly on fish which it catches from the water with its sharp talons. It has a large, hooked beak used for tearing food apart. Bald eagles build their nests high in treetops and the nest is constructed of branches, twigs and dry grass. The pair will continue to add to this nest year after year until it may be well over four feet deep. The adult Bald Eagle is easily recognized by its white head, neck and tail. They measure 31 inches in height with a wingspan of 6 - 7 1/2 feet. Younger Bald eagles have brown heads and tails and do not develop their white plumage until they are about five years of age. Bald eagles mate for life with the female producing 1-2 chicks after an incubation period of 1-1 1/2 months. Bald eagles have made a good comeback since the time when DDT contamination was causing weakened egg shells, but still suffer from mercury and lead poisoning, loss of habitat and illegal hunting. Thanks, Ric!*

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Manuscripts submitted either on disk or electronically as attachments to an email should be submitted in Microsoft WORD. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than** 5.5" x 8.5" (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white **or** color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo. Photographs may be submitted electronically as either JPEG or TIFF file attachments.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980; email is akfeditor@zk.kscoxml.com<

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@zk.kscoxml.com< You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@zk.kscoxml.com<

AAZK Website Address: www.aazk.org

BFR Website: <http://bfr.aazk.org>

Scoops & Scuttlebutt



AAZK Chapters Make Donations Supporting AAZK National, the AAZK Endowment Fund, CPR and the International Congress on Zookeeping

The AAZK Board of Directors and the Administrative Office staff wish to thank the following AAZK Chapters for their donations to the Association. Designations on how Chapters wish their donations allocated are as follows: General Operating Fund (GOF); Conservation, Preservation and Restoration Grant Fund (CPR); AAZK Endowment Fund (EF); International Congress on Zookeeping (ICZ); or Undesignated (U). These donations make it possible for the Association to carry out its projects and programs in continuing zoo keeper education and conservation.

We thank the following (in no particular order): Pittsburgh Chapter (Pittsburgh, PA) \$200.00 (ICZ); Utah Chapter AAZK (Salt Lake City, UT) (\$250.00 (ICZ); Central Illinois Chapter AAZK (Springfield, IL) \$100.00 (CPR); South Florida Chapter AAZK (Miami, FL) \$500.00 (GOF); Sacramento Zoo AAZK Chapter (Sacramento, CA) \$100 (GOF); Orange County Chapter AAZK (Santa Ana, CA) \$50.00 (CPR); Little Rock Zoo AAZK Chapter (Little Rock, AR) \$500.00 (GOF); Nashville AAZK Chapter (Nashville, TN) \$100.00 (GOF); AAZK of New Bedford Chapter (New Bedford, MA) \$25 (EF); Rocky Mountain AAZK Chapter (Denver, CO) \$500.00 (EF); Point Defiance AAZK (Tacoma, WA) \$1553.68 (GOF/CPR/EF) and \$100.00 (ICZ); Southern Ontario Zoo Keepers Association (Toronto, Ont., Canada) \$500.00 (ICZ); AAZK of Cheyenne Mountain Zoo (Cheyenne Mtn., CO) \$500.00 (CPR/EF); Beardsley Zoo AAZK (Bridgeport, CT) \$100.00 (ICZ); Memphis Zoo AAZK Chapter (Memphis, TN) \$250.00 (ICZ); Knoxville Zoo AAZK Chapter (Knoxville, TN) \$500.00 (EF); Virginia Chapter of AAZK (Norfolk, VA) \$200.00 (GOF/CPR); San Diego AAZK Chapter (San Diego, CA) \$750.00 (GOF); Jackson Zookeepers' Association (Jackson, MS) \$50.00 (GOF); Puget Sound AAZK Chapter (Seattle, WA) \$1000.00 (GOF); Detroit AAZK Chapter (Detroit, MI) \$200.00 (GOF); San Antonio Chapter (San Antonio, TX) \$25.00 (GOF); Chesapeake AAZK Chapter (Salisbury, MD) \$1800.00 (CPR)

Enrichment Survey Reminder

All members are reminded to turn in the Enrichment Survey which appeared in the February 2003 issue of *AKF*. Surveys are due by **1 May 2003** and should be sent to: Enrichment Survey, AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please take the time to fill out and return the survey. You may photocopy the insert for additional keepers at your institution who would like to contribute a response. The very first survey received here at AO came all the way from an international member in China, so let's hear from all you keepers out there!

Postage Due is VERY Expensive

Please be aware that every time an issue of *Animal Keepers' Forum* is returned to this office by the Post Office for an incorrect address, it costs the Association \$1.06. PLEASE let us know when you are moving!! Just call 1-800-242-4519 (U.S) or 1-800-468-1966 (Canada) to report an address change (if you leave a message on the machine, speak slowly and clearly). Or you can email your address change to aazkoffice@zk.kscoxmail.com When an issue is returned to us, we do not mail out a replacement copy with the new address the Post Office has provided. It is your responsibility to report address changes. AAZK has much better things to spend its money on than returned mail postage. Please help us out. Your cooperation is greatly appreciated.

Dallas 2004 AAZK Conference Update

Our Dallas 2004 Conference Committee is pleased to announce the dates for the 2004 AAZK National Conference. It will run from Sunday 26 September through Thursday 30 September (again, 2004...) This will also coincide with the Texas State Fair, providing some interesting options for attending delegates. After much consideration of several bids, we have also chosen our hosting hotel. We're proud to announce that the downtown Adam's Mark Hotel will be the site for our conference, and we're also excited that they are working with us to provide very reasonable rates and every amenity possible. *Submitted by: Linda King/Jay Pratte, 2004 Committee Co-chairs.*

Election Ballots Due Out This Month

All AAZK Professional members should be aware that we will be mailing the 2003 Board of Director election ballots later this month. There are four positions up for election to the Board. Those positions are held by Jacque Blessington, Kevin Shelton, Jan Reed-Smith and Linda King whose terms end with the 2003 Conference. New Board members will serve a four-year term from the close of the 2003 National Conference until the conclusion of the 2007 National Conference.

Z.O.O. India Seeks Donations for Uniform Purchases

Sally Walker, Zoo Outreach Organisation, has been working for both *ex situ* and *in situ* conservation in India for the last nearly 20 years. She has a request from the Assam State Zoo in India to help them do something for their animal keepers. In India animal keepers do not make much money and have, generally, a fairly hard time. They don't have opportunities to get the satisfaction many western animal keepers do from understanding fully the purpose of the zoo and of animal welfare. They are from a lower rung of society and are treated as such by visitors. The Assam State Zoo has written that in building up a healthy and scientifically managed zoo, they would undertake to satisfy two main features, e.g. care of animals and care of zoo keepers. The zoo has been giving training to keepers and helping them in a variety of ways, but it is a state (government) zoo and in India (particularly in some states) the budgets will not bear even the necessities - such as uniforms. The salary of a zookeeper is not enough to fit himself out properly and the zoo wants to do this but does not have enough funds. They have appealed to Z.O.O. for help and we are appealing to you for your assistance with this project.

The zoo has given their idea of a "kit" and I have added an extra pair of pants (short) and an additional shirt so that they can wash these items every day. That is a big problem in India — sanitation in zoos — keepers are generally given one uniform and they wear it throughout the week until their off day. So that is the good news ... that a zoo wants to do this for their keepers and thinks well enough of Zoo Outreach Organisation to ask us if we can help. The bad news is that we don't have any unrestricted funds which can be used for this. The good news is that we know YOU. So, if your zoo has a conservation fund, or if your AAZK Chapter has one or could make a casual donation, or if you yourself can contribute, we will set up a special account for the Assam State Zoo. We live in an area where we can buy clothing fairly cheaply but it should be "uniform" — they should have real uniforms so these might have to be specially made. We need \$50.00 per zookeeper. Here is what \$50.00 will purchase for one zookeeper: 2 pants (one long and one short), 2 shirts, 1 jacket, 1 raincoat, 1 pair of shoes, 1 belt, 1 badge (a patch with their zoo logo).

What can you buy in YOUR country for \$50.00 ? How about it ? We will link you to a specific keeper and hope that he will try and write to you (language is a problem, however). We can probably get a photo of your keeper. You will definitely have a link with the zoo and are requested to put them on your mailing list. You should send the money to us as they have very specifically requested us to give the sets "in kind". Government zoos and Indian individuals and organisations are not permitted to take money from foreign sources without a permit. We have the permit and will put this together. Even if we fall short of the amount, we may be able to get some of this stuff at a discount. If we go over, we will get them some extra things. We need to raise enough for 130 kits — 128 zookeepers with a couple of extra kits in case they add someone. If interested in helping out, please contact Sally Walker at zooreach@vsnl.com < You can check out the website for Zoo Outreach Organisation at www.zooreach.org>

AAZK Announces Availability of Granting Programs

The American Association of Zoo Keepers announces the availability of two granting opportunities:

The Conservation, Preservation and Restoration (CPR) Grant – This \$1,000.00 grant is designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member MUST have an active role in the conservation effort submitted for consideration. The division of this grant between two projects is at the discretion of the CPR committee. Funds are made available only after a progress report and receipts have been submitted.

The Zoo Keeper Grants in Research – Two \$1,000.00 grants are funded annually to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator MUST be a full-time keeper and a member of AAZK, Inc. in good standing.

Deadline for application submission for either grant option is **1 June 2003**. Successful grant recipients will be announced at the AAZK National Conference in Fall 2003. The grant cycle runs from 01 January 2004 to 31 December 2004. For further information or an application see the AAZK Website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committees' Chair, jrsotter@iserv.net, 616-693-2680, Fax: 616-374-3263. Please specify which grant program you are interested in.

Coming Events

Tenth Annual International School for Elephant Management - 25 April - 8 May 2003 - Riddle's Elephant and Wildlife Sanctuary, AR, USA. For persons having worked full-time with elephants for at least one year. For registration information please contact elephantsanctuary@alltel.net

Third Annual Rhino Keeper Workshop - 15-18 May 2003 in Denver, CO. Hosted by the Rocky Mountain AAZ AAZK Chapter and the Denver Zoo. Will include speakers and a day at the zoo. For further information contact Rocky Mountain AAZK Chapter President Dave Johnson at (303) 376-4900 or email Workshop Chair Chris Bobko at rhinoqueen@yahoo.com

2003 Elephant Ultrasound Workshop for Wildlife Veterinarians - 4-8 June 2003. At Riddle's Elephant and Wildlife Sanctuary, Greenbrier, AR, USA. For further registration information please contact elephantsanctuary@alltel.net

Association of Avian Veterinarians 24th Annual Conference & Expo - 25-29 August 2003 in Pittsburgh, PA. To be held at Pittsburgh's Westin Hotel and the David L. Lawrence Convention Center. Theme is "Take Flight in Pittsburgh". Program will include lectures, practical labs and Master Classes. To view the entire program and to register on the web, visit www.conferenceoffice.com/AAV. To contact the AAV Conference Office, email AAV@conferenceoffice.com; phone (303) 756-8380; fax (303) 759-8861.

American Zoo and Aquarium Association (AZA) Annual Conference - 7 - 11 September 2003 in Columbus, OH. Hosted by Columbus Zoo and Aquarium. For more information contact Patty Peters: e-mail ppeters@colszoo.org

2003 AZAD Annual Conference - 9-14 September 2003. Hosted by Omaha's Henry Doorly Zoo, Omaha, NE. Interested parties may contact Judy Sorensen at 10969 North Lakeshore Dr., Blair, NE 68008 or by email at howard@nfinity.com

30th National AAZK Conference - 26-30 September, 2003. Hosted by the Greater Cleveland AAZK Chapter and Cleveland Metroparks Zoo. Watch for further information in upcoming issues of *AKF*. Registration and Hotel Forms will appear in April issue.

Elephant Managers Association Conference - October 2-5, 2003 - Hosted by Knoxville Zoological Gardens, Knoxville, TN. For more information, call (865)-637-5331, ext. 359 or e-mail bhargis@knoxville-zoo.org

First International Conference on Zookeeping in 2003 - The Netherlands - Will be held between 2-10 October at Birdpark Avifauna. For further information please visit: www.iczoo.org

American Association of Zoo Veterinarians - 5-9 October, 2003 in Minneapolis, MN. Program sessions include Reptiles and Amphibians, Avian Medicine, Nutrition, Pharmacology (Nutraceuticals and Phytochemicals), Vaccinations, AZA Programs (SSP/TAG Veterinary Advisory Updates), Advances in Technology and Diagnostic Testing, Case Reports and Practice Tips, Aquatics and Marine Mammals, Hoofstock, Carnivores and Small Mammals, Hospital Administration and Leadership, Primates, Pathology, Conservation Medicine, and Emerging Diseases. There will also be a poster session, veterinary and graduate student paper competitions, and workshops/wet labs. For additional information, visit the AAZV website at www.aazv.org or contact Wilbur Amand, VMD, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; Phone (610) 892-4812; Fax (610) 892-4813; email AAZV@aol.com

Sixth International Conference on Environmental Enrichment - 2-7 November 2003 in Johannesburg Zoo, South Africa. The provisional conference attendance fee is US\$250, but this will be confirmed and reduced based on price and currency fluctuations towards the end of 2002. South Africa is an exciting destination that boasts a number of world class zoos. Further information can be obtained from our website at www.jhbzoo.org.za Please feel free to contact Mathew van Lierop who will be coordinating the conference at +27 11 646 2000 ext 233 or at mathew@jhbzoo.org.za

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World's Oldest Asian Elephant Dies

Lin Wang, an 86-year-old Asian elephant taken prisoner by Chinese troops in World War Two, died of old age on 26 February 2003 at the Taipei Zoo. The average lifespan for an Asian elephant is 50 years. He was found dead by his pool and an autopsy determined that he had died from cardiopulmonary failure. He had resided at the Taipei Zoo for nearly five decades.

He had shown signs of frailty after the Lunar New Year holiday earlier in February, moving slowly and eating less. His keeper said that during the week prior to his death, Lin Wang had been observed spending unusually long periods of time in the pool adjacent to his enclosure which was known as the White House. He was reportedly depressed since the death of his longtime mate Ma Lan who died in October of 2002 at age 54 from a malignant tumor in her foot.

In his youth Lin Wang, known to Taiwan children as Grandpa Lin, dragged Japanese army cannon and supplies through the jungles of Burma, now known as Myanmar, until his capture in 1943. Then at age 26, Lin continued his army service on the Chinese mainland and later on Taiwan. In 1954, he was retired to the zoo in the company of a female elephant, Ma Lan.

The island's children loved him, and the zoo threw birthday parties for him each year. The people of Taiwan mourned his death by burning paper money and lighting incense. Zoo officials hoped to raise T\$5 million (US \$144,000) in contributions in order to preserve the body of Lin, believed to be the world's oldest Asian Elephant.

Source: News Releases from Reuters News Service and also from The Taipei Times

Zoo Keeper Safari 2003

I will again be leading a trip to Lewa Wildlife Conservancy in Kenya 2-14 December 2003. Total cost will be \$3,055.00-\$3,255.00 (depending on your city of departure). This includes round-trip airfare to Nairobi, Kenya, round-trip Air Kenya flights directly onto Lewa, transfer fees, nine nights at the "Lewa Tented Camp" (luxury camping including showers/bathrooms within each tent--see www.lewa.org), all meals, game drives and hotel accommodations one night in Nairobi. Drinks and tips (approx. \$50/person for the entire stay) are not included.

Additional/optional trips:

\$20 camel ride or horseback (great way to view game)

\$200 II Ngwesi overnight trip

\$125 Taissia overnight trip (excellent community lodges which have won many tourist awards)

\$66 Samburu day trip

\$66 Sweetwaters (Jane Goodall's Chimp Reserve) day trip/shopping

Rates are based on double occupancy



These trips are designed with a zoo keeper in mind. The best part about this trip is that proceeds from the tented camp go directly into conservation at Lewa. What more could a keeper ask for? A fantastic safari while donating to conservation!

Please call Patty at (919) 678-0449 or email ppear3@aazk.org if interested. Space is limited to 14 people/trip. First priority will be given to zoo professionals and travel companions. Zoo volunteers/ docents and travel companions are also welcome if space is available. Lewa gives us a great deal at \$150/night/person lodging (almost 1/2 price) because of our involvement with Bowling for Rhinos over the years. We want everyone to see what Bowling for Rhinos has helped accomplish over the years. **NOTE: I only have two (2) spots left on the 2003 trip and three (3) for 2004 so contact me ASAP!**

AAZK Announces New Members

New Professional Members

Bryan Martin, **New England Aquarium (MA)**; Brenda Young, **Capron Park Zoo (MA)**; James L. Quirk, Vincent Sonetto and Janeen Moore, **Cape May County Park Zoo (NJ)**; Laurie Perry, **National Zoological Park (DC)**; David Spencer, **Nature's Classroom (FL)**; Mary McCarthy, Katie Powell, **Lowry Park Zoo (FL)**; Kristine Ness, Amanda Carole, **Nashville Zoo at Grassmere (TN)**; Leslie Kaufman, Gary Johnson and Julie Baker, **Louisville Zoo (KY)**; Michelle Tremoulis, **Columbus Zoo and Aquarium (OH)**; Jay Williams, **Cincinnati Zoo & Botanical Garden (OH)**; Joshua Charlton, **Mesker Park Zoo (IN)**; Beth Klochart and Elisha Ann McNamara, **John Ball Zoo (MI)**; Cathy Schlegel and Maria Reedstrom, **Minnesota Zoo (MN)**; Jennifer Thomas, **Lincoln Park Zoo (IL)**; Cindy L. Wheatley, **Henson Robinson Zoo (IL)**; Larry Slayton, **Sedgwick County Zoo (KS)**; Bryan Songy, **Audubon Nature Institute (LA)**; Kimberly Allgood, **Dallas Zoo (TX)**; Cathy Zoller, **Moody Gardens (TX)**; David Johnson, **Denver Zoo (CO)**; Kate Cisneros, **Cheyenne Mountain Zoo (CO)**; Valarie Chavez, **Rio Grande Zoo (MN)**; Katia Schott, **Animal Ark, Inc. (NV)**; Amanda Villacreses, **Los Angeles Zoo (CA)**; Mandy Rinker, **The Living Desert (CA)**; Bernie Loaisiga, **Oakland Zoo (CA)**; Jarrod Willis, **Lindsay Wildlife Museum (CA)**; Erin Sullivan, **Woodland Park Zoo (WA)**; Jackie and Matt Berridge, **Toronto Zoo (Ontario, Canada)**.

Renewing Contributing Members

William E. Brant
The Gourmet Rodent, Archer, FL

Bonnie Jacobs, Lead Keeper
Lincoln Park Zoo, Chicago, IL

Mickey Ollson, Director
Wildlife World Zoo, Litchfield Park, AZ

Reed Gleason
Portland, OR

Renewing Institutional Members

SPSNQ
Jardin Zoologique du Quebec
Charlesburg, Quebec, Canada

Polar Bear Husbandry Conference Scheduled


Polar Bears International (PBI) announces plans to hold a Polar Bear Husbandry Conference to convene February 4-8, 2004 in San Diego, CA. Attending zoo professionals will be treated to what promises to be the most comprehensive gathering of polar bear research ever held.

According to Robert Buchanan, President of PBI, "We plan to bring together many of the most experienced and knowledgeable bear professionals in the world, including noted scientists, zookeepers, and naturalists from a broad spectrum of institutions."


The multi-focus conference will encompass information from the areas of natural history, conservation, habitat, captive population management, diet, veterinary care, public and keeper education issues, behavioral problems, training, polar bear exhibit design, ongoing research among wild and captive populations, and life-enrichment opportunities.

A formal agenda will be published 15 May 2003. For more information and a more detailed preliminary agenda, you should visit www.polarbearsinternational.org. Financial aid may be available for qualifying applicants.

Polar Bears International is a non-profit organization devoted to the worldwide conservation of polar bears through education. Headquarters are in Baton Rouge, LA, at (225)923-3114 or polar_bears@cox.net. Membership begins with a donation of \$25 and includes a quarterly newsletter. For more information, see www.polarbearsinternational.org.



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The Water Column

By

*Dan Conklin, Senior Biologist, Florida Aquarium
Bruce Elkins, Curator of Waters, Indianapolis Zoo
Kevin Shelton, Associate Curator, Florida Aquarium*

This is an article that should have appeared way back when we first started this series. So, you have a nice aquarium system set up and you have had your first attack of infection. You want to treat the tank with a medication that lists a dosage of 0.2 ppm. How much medication do you add?

Well, one of the first things you need to know is the volume of the system. How much water is actually in that nice new system? Much of this is old hat to anyone who remembers their basic geometry.

In simple setups this can be easy to determine simply by measuring the tank and doing a few conversions. Almost all of the normal conversion factors you might need are easily located on the Internet, but I wanted to list a few here.

Standard US measures

1 US Gallon = 231 in³ or 1 in³ = 0.00433 US Gallons

1 US Gallon = 0.13368 ft³ or 1 ft³ = 7.48052 US Gallons

Metric measures

1 Liter = 1000 cm³ or 1cm³ = .001 L

1 Liter = .001 m³ or 1 m³ = 1000 L (isn't metric wonderful?)

For cross conversions

1 US Gallon = 3.7854 Liters or 1 L = 0.26417 US Gals.

1 US Gallon = 3785.41 cm³ or 1 cm³ = 0.00026 US Gals.

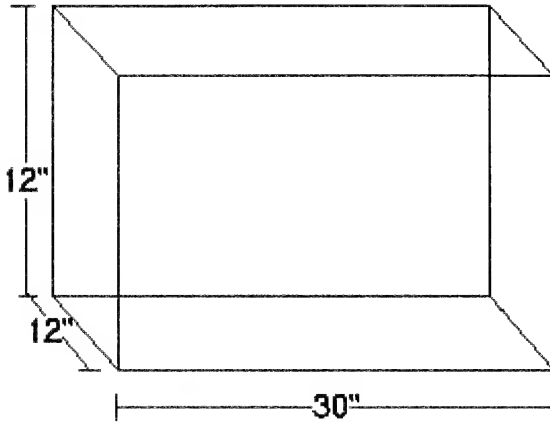
1 US Gallon = 0.003785 m³ or 1 m³ = 264.172 US Gals.

1 Liter = 61.0237 in³ or 1 in³ = 0.01639 L.

1 Liter = 0.03531 ft³ or 1 ft³ = 28.31687 L.

Side note: The best set of conversion charts I have ever found are available in the book Pocket Ref by Thomas Glover, Sequoia Publishing, Inc., Littleton, CO and is available from Aquatic Ecosystems, Inc., 1767 Benbow Court, Apopka, FL 32703. Phone: 407-886-3939 or online at www.aquaticceco.com for \$10.95. This is a very good investment.

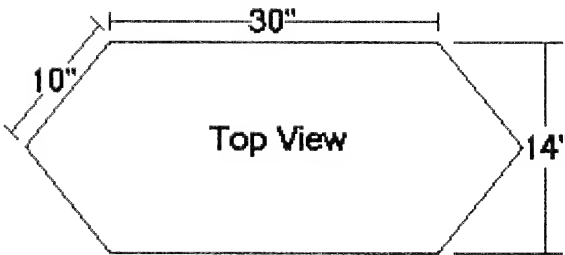
Now, lets take the following diagram for example:



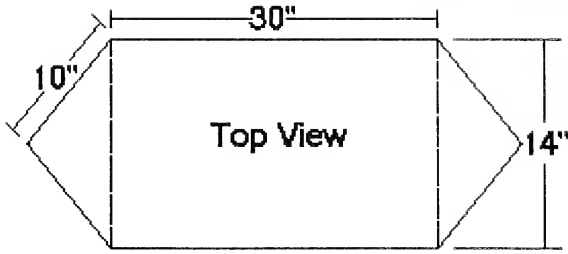
This is an easy one. The tank volume in cubic inches is length x width x height, or 4320 in^3 . Now 1 US gallon equals 231 cubic inches. So, $4320 \text{ in}^3 / 231 \text{ in}^3/\text{gal}$ equals 18.7 gals. Which is interesting since the above tank is sold as a twenty gallon long. When you add in the fact that no one fills an aquarium to the very top (hence the height would be closer to 11" rather than the 12" we figured) you begin to understand how important it is to calculate your tank volumes.

Simple geometric tanks are all relativity easy to calculate volume. A couple of warnings: make sure to measure the actual water height in the tank rather than the height of the tank itself and second, measure the inside of the tank rather than the outside. A tank with 1/4- inch thick glass may not throw in much error but it is error you can avoid.

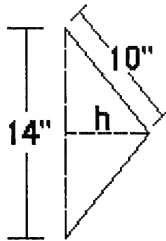
To calculate the volume in a tank of more complex design, see if it can be broken down into a set of simple geometric units. Calculate the volume of each smaller unit and add them together. For example:



This tank can be divided into two triangles and one rectangle. As such:



If we assume the tank has a water level height of 30" then the volume of the main rectangular unit of the tank is: $30'' \times 30'' \times 14'' = 12,600 \text{ in}^3$. To find the volume of the ends, consider this diagram as a slice of the above:



The volume will equal the area of this triangle times the height of the tank. The area of the triangle is the base length (in this case 14") times $h/2$. h can be found either by direct measurement or calculating. In this case $h^2 = 10^2 - 7^2$ or $h = 7.14''$. So the volume for each end of the tank would be $(14'' \times 7.14''/2) \times 30''$ or 1495.2 in^3 .

With that we can find the total volume of the tank:

$$12600 + 2(1495.2) = 15590.4 \text{ in}^3.$$

Then converting to gallons: $15590.4 \text{ in}^3 / 231 \text{ in}^3/\text{gal} = 67.5 \text{ gals}$ rounded off.

Most empty, off-the-shelf aquariums can be calculated with this method. The real fun comes in finding the volume once you start adding various types of decorations, furniture, or filter components. Next month, I will discuss some methods for finding volumes in complex systems.

A quick reminder: The authors of the Water Column are always willing to answer any questions you might have. They can be about filtration systems, water chemistry, or aquatic life. If we don't know, we will find out for you! We also welcome feedback from readers about previously published columns. Questions and comments may be submitted to us by email at:

Dan: dconklin@flaquarium.org/
 Kevin: kshelton@flaquarium.org/
 Bruce: belkins@indyzo.com/

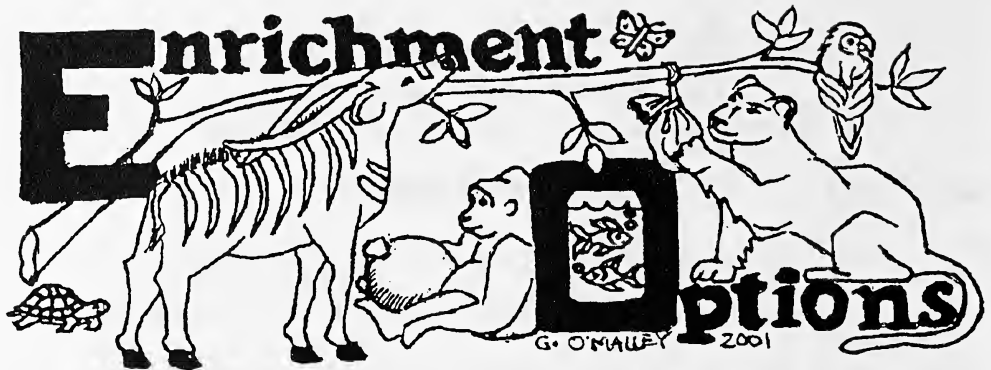
Or by mail at: Kevin Shelton, The Florida Aquarium, 701 Channelside Drive, Tampa, FL 33602.

AAZK Book Sale

Sale price is 20% off the Suggested Price
Previous books may still be available, with some price increases

<u>Sugg. \$</u>	<u>Sale \$</u>	<u>Item Title/Description</u>
\$22.95	\$18.36	<u>Saving Migrant Birds, Developing Strategies for the Future</u> by John Faaborg. Covers over a decade of efforts to save migrant birds, the first serious evaluation of the state of songbird populations. 226 pages, paper, Illustrated
\$23.95	\$19.16	<u>The Ten Trusts, What We Must Do to Care for the Animals We Love</u> , by Jane Goodall & Mark Bekoff. Goodall and Bekoff share their hope and vision for all the earth's creatures. 200 pages, hardcover
\$24.95	\$19.96	<u>Winter World, The Ingenuity of Animal Survival</u> by Bernd Heinrich. Examines everything from food sources to the chemical composition that allows certain creatures to survive winter. 353 pages, hardcover
\$14.95	\$11.96	<u>Helping Nature Heal</u> , Richard Nisen, editor. This book is based on a better idea- environmental restoration-, which offers approaches, which prove that we can help repair the damage. 176 pages, paper.
\$29.95	\$23.96	<u>Fate of the Wild, The Endangered Species Act and the Future of Biodiversity</u> by Bonnie B. Burgess. Burgess' research makes this book a valuable resource. 232 pages, hardcover
\$24.95	\$19.96	<u>Plundering Paradise, The Hand of Man in the Galapagos Islands</u> , by Michael D'Orso. A riveting story of modern-day piracy and greed, and the struggle to save one of the last untouched natural treasures from human destruction. 305 pages, hardcover
\$29.95	\$23.96	<u>The Life of Mammals</u> by David Attenborough. Containing more than 200 photos in spectacular color, this is a book that will gratify anyone intrigued by the natural world and the animals that inhabit it. 320 pages, hardcover
\$45.00	\$36.00	<u>Butterflies of the World</u> , by Valerio Sbordoni and Saverio Forestiero. His guide tells you everything you need to know to identify and understand 2500 of the world's most entrancing species. 312 pages, hardcover
\$49.95	\$39.96	<u>The Butterflies of North America, A Natural History Guide</u> , by Dr. James A. Scott. CD-ROM for Windows. This monumental work covers all of North American butterfly species. With hundreds of field maps, extensive discussion of everything from evolution to host plants, this CD-ROM contains more information than it may be possible to include in a single book.

To Order: List the items you are ordering along with your name and complete mailing address. Include a shipping fee of \$3 for the first item and \$2 for each additional item. Check payable to: "AAZK Book Sales" (**US FUNDS ONLY - NO CASH OR COD's please**). Sorry we cannot process credit card orders. **Call or fax for shipping fees when ordering from outside the continental United States before sending any money.** We will work to find the best form of shipment. **Mail requests to:** AAZK Beardsley Zoo Chapter, attn.: Linda Tomas, 1875 Noble Ave., Bridgeport, CT 06610 **Phone:** 203-394-6563 **Fax:** 203-394-6566 **E-mail:** zooeducate@aol.com



*Editors: Jan Roletto, Arcata, CA
and Dawn Neptune, Utah's Hogle Zoo*

Elephants Love Ketchup

*Submitted by Erin McEntee
Senior Zookeeper / Elephant Trainer
Detroit Zoo, Royal Oak, MI*

Here at the Detroit Zoo we spend lots of time racking our brains trying to come up with new ideas for our 0.2 Asian elephants who are getting up there in age. One is 44 and the other is 50, but they both love new toys and projects that we devise. As with all elephants, designing enrichment for these very strong and sometimes destructive creatures can be very challenging!

Some of the things we have used that don't involve heavy equipment are spices, perfumes, auditory stimuli (which includes a cow bell, classical music, chimes, etc.), and scents from our other animals at the zoo. An example that our girls had a huge reaction to was a pine tree that had been given to the Siberian tigers, and then put out into the elephant yard. Trunks and tails were up and alert, and both were vocalizing enough to stop traffic! They ended up throwing it around and the tree even got charged once or twice, and boy did they get some exercise. Eventually, as with all new enrichment, the excitement wore off and we found ourselves brainstorming again.

In this article, we will discuss a variety of the different enrichment options we have used. The most valuable pieces of our collection are our self-made clotheslines. We hang a huge clothesline between two large trees outside for the warmer months, and then it is taken down and put up in the stalls for winter. We also have a slightly smaller one that we hang in various places as well. These clotheslines are made with chain and then are covered with fire hose. You can cut small slits through the fire hose to hang things or just wrap it around. We also spent approximately \$1,000 and had large eyebolts drilled into all five of our stalls so we could hang the clotheslines or any other enrichment devices across or diagonally. These two items have been paramount in our enrichment endeavors.

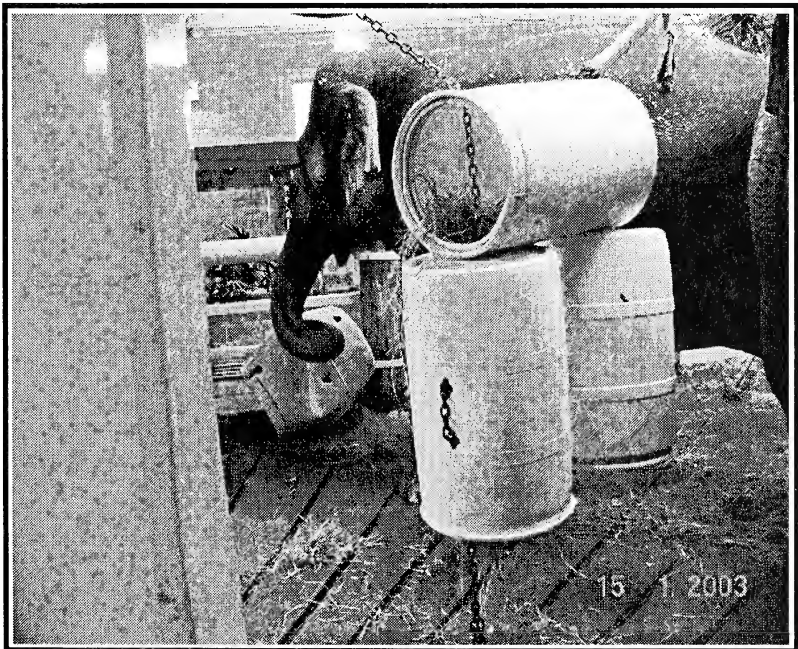
The following things have been the most popular:

- **street cleaner brushes** (we have one that is 6ft. tall and about 4ft. around, and two that are about 4ft. tall and 1ft. around; these are made out of hundreds of nylon bristles and have a hollow center to allow for a chain to be put through; the bristles are very sturdy and not one has ever come off) ** *Call to see if old ones can be donated because companies usually just throw them out, and they are pretty expensive to buy.*



Tractor tire, street cleaner brush and browse hanging from clothesline. (Photo by Rick Wendt)

- 50-gallon drums, any size Boomer Balls®, old chlorine jugs, etc. (drill holes in can then insert a food item, or link a bunch together, etc.)



“Wanda” playing with plastic barrel with treats inside. 50-gallon barrels hooked together hang from clothesline. These barrels also have smaller chlorine jugs inside that have holes drilled in them which are filled with treats. (Photo by Rick Wendt)

- **mud wallows** (self-made w/ the backhoe and then we shoot the 1 1/2" hose into it to refill) ****Serves two purposes, elephants like to play in the hose too!**
- **tractor tires or tires of any size**
- **shavings** (put in barrels or just in a big pile; we also have been giving our elephants an extra large shavings bed in our end stall to sleep on at night and they love it!) ****I know what you are all wondering, and no, they have never got impacted or sick from eating the shavings, and yes, they do eat them sometimes!**



The shavings bed (this one is elephant sized), a large PVC tube , and a small tree. (Photo by Rick Wendt)

- **cardboard boxes** (small or refrigerator size; fill them up with flakes of hay, their grain, popcorn, coconuts, honey, etc.) ****We give the small ones only 1 per elephant per week at the most, and the extra large refrigerator size only one every few months!**
- **ice treats** (produce and then fill with water and/or juice and freeze with a chain inside that will allow you to hang; five-gallon buckets work best or 35-gallon cans are fun too. Without a chain works just as good and gives them something to smash!)
- **sand piles** (we get sand delivered into the yard)
- **tilling the soil** (we have someone come in with a tiller to stir up the old packed down sand in the yard)
- **large cans of water with produce** (it is just like the 'bobbing for apples game')
- **enrichment garden** (pumpkins, squash, bamboo, cherry tomatoes, etc. is grown in a section of the zoo for the animals)
- **Jell-O®**
- **large cone on a rope** (use a very large rubbery traffic cone and 1 1/2" thick rope; make one end a knot then pull rest of rope through top and then attach with a few slip knots; leave a piece of rope hanging out the bottom of cone and then they can use their trunks to swing it around by the end) ****If you leave it long, but not touching the ground, our girls like to swing it around with their front legs and with their tails.**
- **hang browse** (any edible browse; our girls do not eat the large pines, but they do scratch and play with them, and you can also decorate them like a Christmas tree using produce)
- **whole trees brought into yard** (when our landscape dept. cuts down whole trees, we have them dropped into the yard with a crane)
- **hay nets** (yes, they get a little shredded, but once our girls figured out how it worked, they really like to use it and it allows for hay to be hung up really high) ****These can be ordered from any farm supply catalog, look in the equine section.**

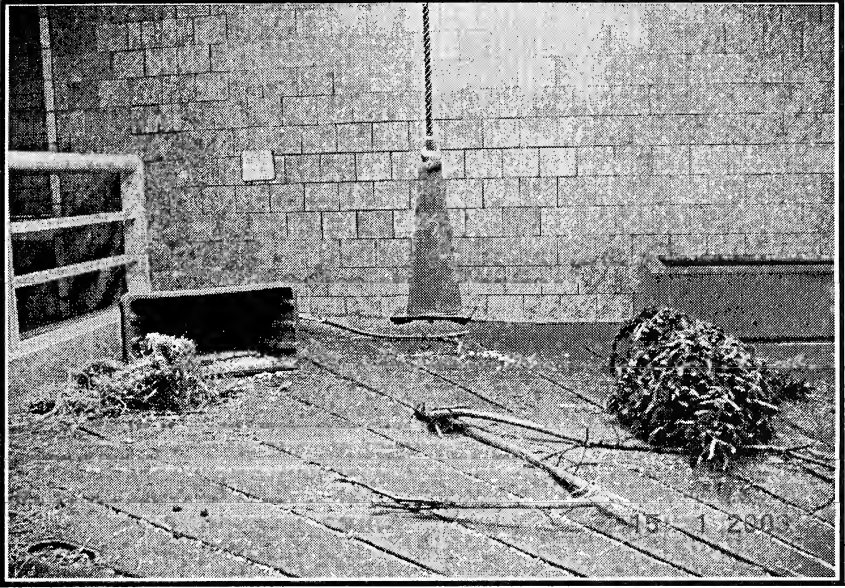
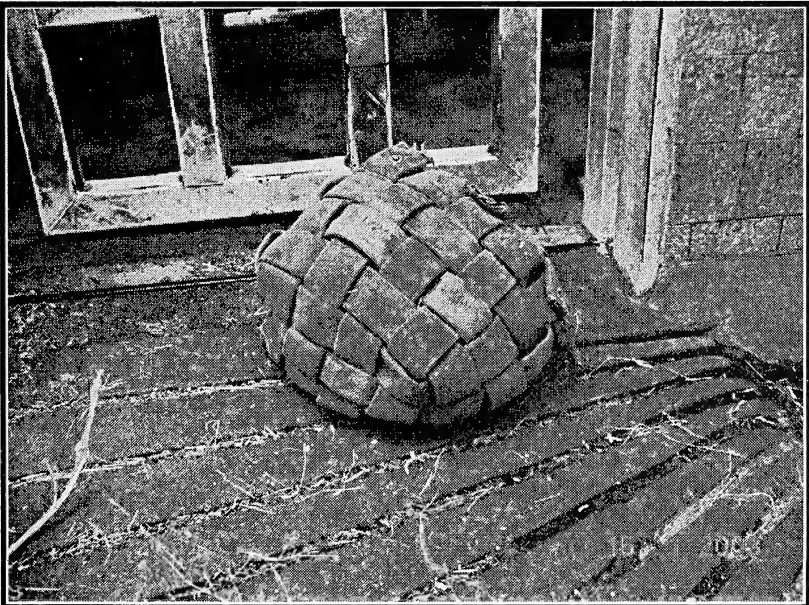


Photo shows traffic cone on a rope and also large laundry bin that has popcorn and other treats inside. (Photo by Rick Wendt)

- **fire hose cube** (pieces of fire hose woven in and out and bolted into place to form a cube; you might also want to place a medium size Boomer Ball® inside to help keep its shape)



Fire hose cube with medium Boomer Ball® inside. (Photo by Rick Wendt)

We would like to thank Keoni Pappas from the Honolulu Zoo for this idea, which was in *The Shape of Enrichment* article vol. 11, no. 3 August 2002.

P.S. We have found that hanging from 10-foot ladders and almost killing each other trying to hang that 100-pound tractor tire “just a little bit higher” is all in a hard days work for us zookeepers. Because of this fact, tell your bosses you need to purchase a come-a-long to do all of your heavy-duty enrichment projects. It has made our lives much easier and safer!

I hope one or some of these are helpful to everyone. Any questions please feel free to email me at: emcentee@detroitzoo.org I would also like to thank my fellow elephant trainers – Patti Rowe, Mary Mutty and Rick Wendt - for their assistance in this paper and all of their wonderful ideas.

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit materials for the Enrichment Options Column. This might include recipes, toys, puzzle feeders, olfactory enrichment ideas, etc. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054. Eds.)

Three Types of Data Transfer Forms Available from AAZK

Just a reminder that three different types of data transfer forms are available to requesting institutions from AAZK at no charge. These forms are designed to be used whenever an animal is shipped from one facility to another so that important information on that animal can be passed on to the receiving keeper and veterinary staffs.

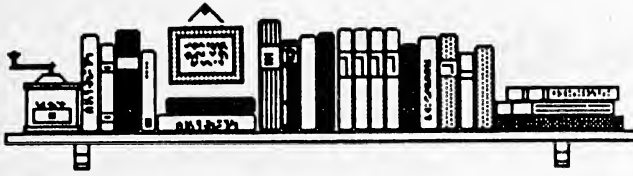
The following forms are available by contacting Barbara Manspeaker at 1-800-242-4519 (U.S.) and 1-800-468-1966 (Canada), or by emailing your request to aazkoffice@zk.kscoxmail.com

- Animal Data Transfer Form (ADTForm) - includes information on diet, reproductive history, general medical history/physical conditions, and enclosure/maintenance data on animal(s) being shipped.
- Enrichment Data Transfer Form (EDTForm) - includes information on behavioral history, enrichment currently used and how implemented (food, exhibit, artificial, etc.), safety concerns for animal(s) being shipped.
- Operant Conditioning Data Transfer Form (OCDTForm) - includes general background information, training specifications, training schedule, behaviors trained and methods used for animal(s) being shipped.

These forms are provided free of charge as a professional courtesy of AAZK, Inc. We encourage all zoos, aquaria and other animal care facilities to adopt the use of these forms when shipping animals. We extend our thanks to the following institutions for assisting in the printing expenses for these forms: Columbus Zoo (ADTForm), Arizona-Sonora Desert Museum (EDTForm), and Disney's Animal Kingdom (OCDTForm).

MOVING?

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Book Review

Baboon Mothers and Infants

with a New Foreword

By Jeanne Altmann

Copyright 1980, Foreword 2001 ISBN 0-226-01607-2

University of Chicago Press, 1427 E. 60th St., Chicago, IL 60637

242 pp. Paperback \$17.00

*Review by Beth Schaefer, Animal Manager
Kansas City Zoo, Kansas City, MO
(currently at Disney's Animal Kingdom)*

The Amboseli Baboon Research Project reached its 30th year in 2001. *Baboon Mother's and Infants* was first published in 1980 documenting the research on baboon troops done in Amboseli National Park, Kenya. In order to commemorate the 30th year, Jeanne Altmann has written a new forward for her book.

Altmann's new forward has the advantage of being written with hindsight. The foreword identifies some areas of research that have become essential in the field of animal behavior. Some of these areas were not even considered at the time the research was done. In addition, the foreword briefly outlines the themes that will be found throughout the book.

The first two-thirds of the text focuses on birth and the effect on and between mothers and infants. The text deals largely with the last month of pregnancy and the first year of the infant's life. Many factors are examined ranging from the apparent vs. actual physical costs of carrying an infant to the social ranking of the female and how it affects both female and infant health and survivorship.

The last one-third examines infant development and independence. Covered in this section are such topics as the physical maturation of the infant, use of physical space, effects of mothering styles and mother-infant conflicts.

When the research on the baboon troops in Amboseli National Park was undertaken it was largely groundbreaking. Throughout the text Altmann does refer to other research being conducted and compares it to what they were doing at Amboseli. This aspect, combined with the comprehensive reference section allows this book to act as a springboard for a keeper to delve further into the field of studying animal behavior. With the increasing importance being placed on research in zoos, this book will be a valuable tool for keepers.

Any student of animal behavior will have encountered some of Altmann's many books and articles. While reading Altmann's book from cover to cover may not be the goal of a zoo keeper, being exposed to texts such as *Baboon Mother's and Infants* can be of great benefit. Many keepers are unaware of some of the early research in animal behavior. This research yielded many of the facts that we use to educate the public with each day. Reading a text such as this can open new channels of thought and allow keepers insight into the social and physical pressures that have shaped the behavior of the animals in their care. Although it may not find its way into many private book collections, Altmann's work is an excellent resource for zoo libraries.

Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



Vicuña Downlisted to Threatened Status

The U.S. Fish and Wildlife Service (USFWS) has downlisted the vicuña (*Vicugna vicugna*) populations in Argentina, Bolivia, Chile, and Peru from endangered to threatened status under the Endangered Species Act. The vicuña is the smallest member of the camel family and lives in the Andes Mountains. Vicuña are prized for their wool, which became so sought after in the 1970s that only about 8,000 individuals remained in the wild.

While efforts to conserve wild vicuña populations have achieved success, poaching of the animals continues. It is estimated that subsistence poaching by local residents, many of whom live in extreme poverty, accounts for the deaths of approximately 2% of the wild population annually. The USFWS decided to downlist the populations in the four named countries on the basis that conservation measures are in place and the overall population of vicuña has increased. USFWS says that it will continue to monitor trade in vicuña products to determine the continued effectiveness of conservation measures and will restrict or suspend vicuña imports from any country whose vicuña populations is not continuing to grow. *Source: The Traffic Report, A Publication of TRAFFIC North America, vol. 2, no. 1, January 2003*

Greece Considers New National Animal Control Law

The Greek deputy agriculture minister Fotis Hadzimichalis recently introduced a proposed national animal control bill which would discourage Greeks from abandoning their animals while allowing local authorities to collect, sterilize and in certain cases kill stray dogs. The action comes in anticipation of the 2004 Olympic Games and is an effort to refute claims by many critics that the country is akin to a crematorium for strays, said Hadzimichalis. The proposed law would mandate that dogs found at large would be vaccinated, sterilized, held for a reclaim period, and then returned to the capture point if deemed healthy and not dangerous. Likewise, the law forbids dogs to run at large in public places and bans dog fighting and breeding animals for fights or other events that can cause pain, anxiety or death. Originally the legislation contained a tax on pet and working dogs but that provision was deleted when animal advocates warned that it might encourage animal abandonment.

The legislation has been advocated for over two years by various animal interest groups including the Greek Coalition In Defense of Animals. In response to the announcement of the pending legislation, a spokesperson for the Coalition stated that members were concerned that Greek cities might simply truck street dogs into remote regions and release them into pens to starve, out of sight out of mind. The Coalition documented instances of animal control personnel using similar tactics in the past when attempting to get rid of both street dogs and feral cats. Moreover, investigations carried out by other animal welfare societies showed that these animals were frequently poisoned in prime tourist locations to depopulate the areas. Hadzimichalis stated that the legislation would address these problems as well and create a more humane method of dealing with the dog and cat overpopulation problem before the Summer Olympic visitors begin their descent on the country next year. *Source: Animal People: News for People Who Care About Animals vol. 13, no. 1, January/February 2003*

Recovery Plan for Willow Flycatcher Finalized

The USFWS has issued its final recovery plan for the southwestern willow flycatcher (*Empidonax trillili extimus*), an endangered bird that migrates between the U.S. and Latin America. The plan was developed by 14 scientists from various disciplines with input from more than 200 team members including ranchers, farmers, water, power and environmental interest groups, Native American tribes, federal and state land managers, and local governments.

The flycatcher can be found in Arizona, New Mexico, Texas, Colorado, California, Nevada and Utah. USFWS recovery plans serve as a "blueprint" for conserving threatened or endangered species. The purpose of the flycatcher plan is to recommend recovery objectives and specific actions to shift

the bird from endangered to threatened status with the ultimate goal of removing it from the list of endangered species. The flycatcher builds its nest and raises its young in the southwestern U.S. and then migrates to Mexico, Central America, and possibly northern South America during the winter months. The primary reason for the bird's decline is loss of riparian habitat throughout the southwest.

The recovery plan places emphasis on actions that restore and enhance riparian ecosystems by maintaining and restoring flowing streams, causing flood cycles in some years, lessening impacts from domestic livestock, wild burros and other native grazers, securing long-term protection of breeding habitat, controlling exotic plant species and reducing nest parasitism by brown-headed cowbirds. Currently there are 986 known territories (the size of an area used by a breeding pair) in southwestern willow flycatcher range. Before the bird can be taken off the threatened and endangered species list, the recovery plan mandates that there should be at least 1,950 geographically distributed territories throughout the bird's range with assurance that the habitat will be maintained over time.

Source: USFWS Press Release 5 March 2003

Texas Landowners to Receive \$1.45 Million in Grants to Preserve Critical Habitats

The USFWS has entered into a partnership with a number of private landowners in Texas with the goal of conserving and restoring the habitat of endangered species and other at-risk plants and animals. Grants totaling \$1.45 million will come from the administration's new Landowner Incentive Program (LIP). The state, landowners or non-profit groups must put up at least 25 percent of the cost of projects with the USFWS funding the remaining 75 percent. The Texas Parks and Wildlife Department announced that \$100,000 of state funds and \$480,000 of private landowner (non-federal) funds have already been committed to the project. Money will be used for such things as the provision of technical assistance to private landowners with endangered species on their property to monetary incentives to keep habitats healthy.

Nationwide, the Interior Department is providing \$34.8 million in grants to states under the LIP which supports the administration's overall Cooperative Conservation Initiative. This initiative includes a number of conservation grant programs to assist states, Native American tribes, conservation projects and programs. President Bush proposed \$113.2 million for the Cooperative Conservation Initiative in his fiscal year 2004 budget.

A spokesperson for the USFWS stated that: "These grants are the catalysts to support efforts of local partners to come up with new and better ways to conserve at-risk fish and wildlife species. Through this program, the Service is pooling its resources with private landowners and state wildlife agencies to ensure these species have sufficient habitat." *Source: USFWS Press Release 5 March 2003*

Pygmy Rabbit Population Added to Endangered Species List

The Columbia Basin population of the pygmy rabbit (*Brachylagus idahoensis*) has been added to the federal list of endangered species after the USFWS determined that the population meets the criteria to be listed as a Distinct Population Segment (DPS) under the Endangered Species Act. There are fewer than 30 individuals in this population which is located on private and state lands in the state of Washington. Because of the extreme risk of extinction, the population was given emergency protection under the ESA. "Over the past decade the number of Columbia Basin pygmy rabbit colonies and active burrows in Washington has declined dramatically," said Anne Badgley, Regional Director of the Service's Pacific Region. "This population would likely face extinction if it were not for captive breeding efforts and other conservation actions now underway."

A DPS is defined by the Service as a breeding population that is separate from others of its kind and whose preservation is essential to the long-term conservation status of the species. The Columbia Basin population segment of the pygmy rabbit is extraordinarily imperiled because it is so small and fragmented. Threats to this DPS include declining or degrading sagebrush habitat, disease, predation, and inbreeding. The Columbia Basin pygmy rabbit has been isolated from other pygmy rabbit populations for thousands of years, it is genetically different, and it survives in a unique ecological setting.

In the spring of 2001, the Washington Department of Fish and Wildlife initiated a captive-breeding program for the species in cooperation with Washington State University and the Oregon Zoo. Sixteen rabbits were captured as an initial source for the captive breeding efforts. Badgley stated that: "These rabbits adjusted well to their artificial habitat and they have successfully reproduced in captivity over the last two years. We are encouraged by these ongoing efforts and congratulate the

partners who have come together to save this species. We will continue to work with them to recover the pygmy rabbit while partnering with state agencies and affected landowners to minimize impacts to current and future land use activities.”

Currently, the species occurs only on state and private land. However, the Foster Creek Conservation District is developing a Habitat Conservation Plan in conjunction with the USFWS for private agricultural interests in the species home range. The plan will address ranching, farming and orchard activities, and will likely also include conservation measures for rabbits on other privately owned lands.

The pygmy rabbit is the smallest rabbit in North America, with adults weighing about one pound and measuring less than a foot in length. The rabbits primarily eat sagebrush, native bunchgrasses, and other perennial plants. Although rabbits normally are associated with a high reproductive capacity, biologist point out that such reproduction does not necessarily translate into secure populations particularly when disease, predators and food shortages are common. Recent data also shows that pygmy rabbits may not have the same capacity for rapid reproduction as other species of hares and rabbits. *Source: USFWS Press Release 3 March 2003*

CITES Turns 30

March 3rd marked the 30th anniversary of the signing of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and international treaty signed by 161 nations to ensure that the trade in wild animals and plants does not threaten their survival says the World Wildlife Fund. “Not one species protected by CITES has become extinct as result of trade since the Convention entered into force,” to the benefit of species such as the rhino, elephant, Asian big cats, sturgeon, Tibetan antelope, seahorses, bigleaf mahogany and many others.

Source: GREENlines Issue #1813 3-4-03

Key Deer Bounds Back

Down to as few as 27 in 1957, the number of Florida Key deer has rebounded to some 800 and is “nearing the saturation level” on the 9,000 acres of slash pine forest and wetlands in the National Key Deer Refuge, prompting managers to consider relocation of some deer to another key reports the *L.A. Times*. The refuge, which has been so instrumental in the Key deer recovery also provides habitat for 22 endangered and threatened plants and animals, including five found nowhere else in the world. *Source: GREENlines Issue# 1816 3/7/03*

Shark Fin Soup Puts World Bank in Hot Water

Many folks at the World Bank were upset when the Washington D.C. cafeteria served shark fin soup in honor of the Chinese New Year reports the *Washington Post*. One environmental official complained that “sharks around the world are seriously threatened and in decline because of over-fishing.” “Our serving sharkfin soup in the bank,” the official said, “is just another example of the disconnect between the message we deliver to our clients [mostly developing countries] about environmental responsibility and our corporate actions.” *Source: GREENlines Issue #1804 2-19-03*

Condor Matriarch Killed

Adult Condor 8, one of the last wild condors captured in 1980s for a breeding program to save the species, was “found shot to death” in a remote area north of Los Angeles reports the *SFGate/AP*. AC-8 spent 14 years in captivity, producing 12 offspring and was “one of the first of the original wild birds to be released in 2000” when “she stopped laying eggs.” According to CA Gov. Gray Davis, “This is a senseless death that strikes a blow at our efforts to bring these great birds back from the edge of extinction.” When AC-8 was captured in the 1980s, only 15 California condors remained, today there are 79 in the wild and another 118 in captivity. FYI: <http://endangered.fws.gov/i/B0G.html>. *Source: GREENlines Issue #1810 2-27-03*

Pelican Reward Up to \$15,500.00

The International Bird Rescue Center in Los Angeles California is offering a “\$15,500 reward for information leading to any arrests in the ongoing maiming of endangered California brown pelicans” reports the *SFGate/AP*. Since 22 December, 16 pelicans have been found dead or injured, most in the Los Angeles area, but more recently in the San Francisco area and along the Oregon coast. *Source: GREENlines Issue #1797 2-7-03*



REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

*By William K. Baker, Jr., Curator
Little Rock Zoo, Little Rock, AR*

Question

Animal Keepers regularly work in direct proximity to large hoofstock. Do you have any recommendations for maintaining a safe work environment? Part II

Comments

There are three areas that readily come to mind when working exotic hoofstock in a captive situation on a daily basis: communication, exhibit familiarity, and routine.

Effective communication should never be underestimated when working exotic animals, especially hoofstock. One of the key areas that are often overlooked is good record keeping. Examples of this would include written communication through daily reports and daybooks. While on the surface this may seem straightforward, notes are often quickly entered at the end of the workday as the staff heads out the door or the intent is to enter them the following day when the staff reports back to work. This type of communication is not only important to record keeping, but providing an on-going status report that animal managers can review when they come back from vacations, sick leave, and their weekends. As a result, data entries on reports need to be concise but still provide all of the necessary information a staff member needs to review prior to reporting to their assigned work area.

Good communication between coworkers is critical to maintaining a safe work environment. This has to exist in conjunction with the written record keeping. Ideally when working an animal section, each Animal Keeper should know what the game plan is for the day and who will be doing what, where, when, and how. This prevents surprises and the associated stress that often drives professionals to cut corners just to stay ahead of the game on a daily basis. Still, the single most important factor would have to be knowing where each coworker is in the section and what they're doing. Either a verbal by radio, voice, or preplanning can accomplish this, but it needs to happen. This way when you are focused on the work environment and hear a strange noise, it will trigger a response on your part to check on your coworker's status. In effect, you are acting as each other's "life-line".

On the surface exhibit familiarity may sound a little ambiguous, yet like communication it's really straightforward. Exhibits come in all shapes and sizes depending on the budget and goals of the

institution. Hoofstock exhibits are really no exception to this, but the basic premise of the design is usually a constant with an exhibit yard and a series of holdovers dependent on whether it's a single or mixed-species exhibit. At times the holdover system may incorporate a restraint chute or a system to facilitate animal husbandry but this really is just a variance on the basic design. What I'm getting at is knowing the strengths and weaknesses of the exhibit. Examples of this would include knowing where the blind spots are on-exhibit due to props or landscaping, eliminating any trip hazards, and being aware of where the escape routes are to get out of the exhibit when something happens.

Although it should be considered a design flaw, another facet would be knowing what potential "triggers" exist for the animals when they are on-exhibit. Typically after introduction to an exhibit, animals usually acclimate to their surroundings and ignore the public, but on occasion for unknown reasons, an animal or herd will react poorly on a daily basis to a certain prop, a piece of landscaping, or part of the containment such as a certain corner. My best theory about this is that this occurs by process of association by a single animal, which the rest of the herd picks up on and thereafter it becomes an established behavior pattern. Regardless, the Animal Keeper is faced with realizing and knowing this "inside" piece of information and incorporating it into the routine when servicing the exhibit.

Speaking of routine, in my experience this is the most important key to maintaining herd stability and decreasing stressors on a daily basis. Once animals are acclimated to shifting a certain way into their holdover or to the other side of an exhibit when staff members are servicing it, the established pattern of events needs to be preserved. Hoofstock can quickly shift from being suspicious of an unusual activity or a shift in patterns to downright aggressive if they perceive a threat (real or otherwise). I usually recommend that when two Animal Keepers are working together on-exhibit that they stay on the same side of the yard and shift the herd over gently, eventually assuming the animals previous position on the other side of the exhibit. It goes back to what I previously discussed about "telegraphing" your actions, just because you know what's happening doesn't mean the animals are necessarily aware of it. Calm, cool, and collected is the best attitude that I can assign to working exotic hoofstock. A final point, I highly recommend unscented personal hygiene products for staff members who directly work exotic hoofstock. The scented products tend to trigger undesirable reactions from the animals.

Next Month: Are there any specific recommendations on capture techniques for smaller mammals?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)

Second Call For Papers

Deadline for abstracts: July 1, 2003
Deadline for papers: August 26, 2003

Our theme for the conference is “Strange Situations... Wild Occupations.” We are looking for papers, posters, or workshops that address novel issues in the zoo keeper profession. Presentations involving all taxons are desired. Topics of interest include husbandry techniques, training, enrichment, education, exhibit design, conservation, research, and professional development.



Four workshops are already planned for the conference. Presenters and moderators are requested for aquatics, avian husbandry, herpetology, and primatology. Workshops involving other topics are also strongly encouraged.

Abstracts must include the following information:

- Name of presenter and co-authors
- Zoological institution
- Position or title
- Title of paper, poster or workshop
- Short bio of yourself (for introduction)
- Audio/Visual needs

Please limit abstracts to one or two paragraphs. Abstracts must include in detail the significance of the topic to be presented along with the results, conclusions, or benefits of the work described. Poorly written or incomplete abstracts will be returned.

Submit two copies or the abstract to:

Shane Good, Animal Keeper
Cleveland Metroparks Zoo
3900 Wildlife Way
Cleveland, OH 44109

Email: sjg@clevelandmetroparks.com

Phone: (216) 661-6500

Fax: (216) 661-3312

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September 24, 2003 - October 3, 2003

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\$15.00 FOR SELF PARK, PER DAY \$15.00 - VALET PER DAY

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**To guarantee your room, we will need a first night's deposit or credit card number.
If you wish to cancel your reservation, you must contact us by 6:00 p.m. on the day of arrival
or you will be charged for one night's stay.**

Strange SituationsWild Occupations

2003 AAZK NATIONAL CONFERENCE
CLEVELAND, OHIO
SEPTEMBER 26-30, 2003



CONFERENCE REGISTRATATION FORM

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Registration Fees

Registration Deadline is 1 August 2003

AAZK Member	\$150.00	_____
AAZK Member's Spouse	\$150.00	_____
Non-Member	\$200.00	_____
Late Fee *per person *(After 1 Aug. 2003)	\$ 25.00	_____

Daily Rates

Fri 26 Sept (Icebreaker)	\$25.00	_____
Sat 27 Sept (papers, breakfast, breaks)	\$35.00	_____
Sun 28 Sept (papers, breakfast, breaks)	\$35.00	_____
Mon 29 Sept (zoo day, breakfast, lunch)	\$35.00	_____
Tues 30 Sept (papers, breakfast, lunch, breaks)	\$40.00	_____
Tues 30 Sept (banquet)	\$40.00	_____
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Check enclosed _____ Please make checks/money orders payable (in U.S. funds) to: Cleveland AAZK
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Conference Registration Fee **does not** include the cost of Conference Proceedings

Send Registration Form and all fees to: Stephanie Poduska, AAZK Registration, Cleveland Metroparks Zoo, 3900 Wildlife Way, Cleveland, OH 44109.

CONFERENCE NOTES AND UPDATES

PRE-CONFERENCE TRIP: 25-26 SEPTEMBER

We will leave Cleveland and travel to the Detroit Zoo. After a day at the zoo, we will spend the night in Detroit. The next day we will go to the Toledo Zoo and return to Cleveland late Friday afternoon.

COST: TBD

POST-CONFERENCE TRIP: 1-2 OCTOBER

Come enjoy the Laurel Highlands of Pennsylvania in the fall, with an afternoon of white water rafting on the Youghigony River or traveling the hiking/biking trails of the highlands. We will spend the second day visiting the Pittsburgh Zoo and National Aviary, returning to Cleveland late in the evening.

COST: TBD

AIRLINE INFORMATION

The official airline is Continental. The discounts are 10% off Yand H fares and 5% off all other fares. The codes when booking your flights are UPMV4T for travel to Cleveland and VSCB5H for travel to Amsterdam.

REGISTRATION FEES

Please note that there will be no refunds of registration fees two (2) weeks prior to the conference.

AUCTION ITEMS

If you are bringing an auction item, it would be great if you could send it in early to:

Heather Mock
3900 Wildlife Way
Cleveland, OH 44109

QUESTIONS

We update our website as often as we can at www.clemetzoo.com. Or you could call (216) 661-6500 x4482. Please note the extension has been changed from the one published in the March *Forum*. When calling, please leave a brief explanation of your question and the best way to contact you during the day. As you well know keepers are never near the phone when it rings, and if you leave your question we can call you back with an immediate answer.

Geology, Wildlife, and Politics in The Philippines

By

*Elizabeth Cary Mungall, Education Department
Houston Zoo, Houston, TX*

To American audiences, The Philippines is among the most poorly known regions on earth. It also has one of the richest and most unique assemblages of native fauna and flora. For these reasons, the Houston Zoo invited William L. R. Oliver, director of Fauna & Flora International's "Philippines Biodiversity Conservation Programme", to open its 2002 fall lecture series.

Oliver started his professional wildlife career putting his passion for animals to work by hiring on at the Marwell Zoo in England. Later, came fourteen years with the late Gerald Durrell's Jersey Zoo and Conservation Center which deals with animals and people from all over the world. This enabled Oliver to go out to other countries like India, Brazil, and Jamaica to help set-up conservation projects for some of the world's most threatened wildlife species and habitats. Oliver has seen firsthand how it can take as long as 20 or more years to get a successful conservation program running, but, when the right mix of resources and personnel are drawn together, the results can be worth the frustrations.

Goal for the evening was to develop an appreciation for The Philippines as one of the world's premier "hotspots" of biodiversity. Oliver approached his mission by mixing examples from his observations of the many kinds of indigenous animals – Philippine spotted deer being one of these with which he has worked closely (Fig. 1) - with insights from the geologic history of this set of 7,108 West Pacific islands. Intermittent contacts, volcanic upheaval, and 21 ice ages have created layers upon layers of invasions and isolations resulting in a faunal complexity offering lifetimes of zoological detective opportunities.

Viewed on a large scale, The Philippines (other than the island of Palawan) is sandwiched between Wallace's Line and Weber's Line. As modified by T.H. Huxley, the line drawn by naturalist Alfred Russel Wallace separates the lands dominated by oriental species to the west from islands like The Philippines and Celebes to the east which show both oriental and Australasian affinities. Later, zoologist Max Weber drew another line dividing these islands, with their mixed faunal origins, from islands off the coast of Australia and New Guinea, where the animals he was studying were of Australasian origins. Interestingly, this line of Wallace's matches the maximum continental extent of land that oriental animals would have had terrestrial access to during the time of lowest Pleistocene sea level. It separates the Oriental Zone that is or was continental from volcanic islands like The Philippines that have never been connected. Similarly, Weber's Line on the other side sets these islands apart from the huge continent exposed at the same era that is now represented by Australia and New Guinea.

Viewed on a fine scale, The Philippine Islands fall into several subgroups. Similarities of animals on the island of Palawan to animals farther west put it on the other side of Wallace's Line from the rest of the Philippines, Palawan being allied to Borneo and the rest of the Greater Sunda Islands. In the remainder of The Philippines, about 70% of wildlife species (e.g. mammals, reptiles and amphibians) are endemic, in other words unique to this country, or to particular parts of this country. In other words, they are found nowhere else in the world. These unique species are segregated by deep-water channels among five major subdivisions or "centers of endemism", each with its own subregions as well as many smaller divisions. With their surrounding smaller islands, the five major subdivisions are "Luzon", "Mindoro", "Greater Mindanao" (which includes Mindanao, Samar, Leyte, Bohol and various smaller islands), the "West Visayas" (which includes Panay, Negros, Cebu and other neighboring islands), and the "Sulu Archipelago" in the extreme south. Three of



Fig. 1. Male Philippine spotted deer (photo by William L. R. Oliver)

these major subdivisions are included in the Top 10 list of the world's highest biodiversity conservation priority areas (Luzon, Mindoro, and West Visayas). Oliver makes a strong case for designating the West Visayas the world's single highest conservation priority area in terms of both numbers of threatened endemic species represented and degrees of threat!

The Philippines has one of the fastest growing human populations in Southeast Asia. Rampant expansion makes it difficult for the government to cope with matters of human necessity, much less questions of environmental concern. The combined land area of approximately 300,000 sq km (115,830.6 sq. mi.) is estimated to have been originally at least 94% covered by tropical forest. With more than 80% of the forest cover gone and only about 2-3% of the remainder in primary forest, wildlife has little of its natural habitat remaining. For comparison, Madagascar and southeastern Brazil - which, along with The Philippines, are ranked by most major international conservation agencies as being the world's highest biodiversity conservation priority regions - have also suffered extreme deforestation. However, they support fewer endemic species or more forest than The Philippines. Making matters worse are both the misfortunes that lowland forest has suffered the most and that lowland forest is home to the greatest number of species. Unfortunately, policies put in place during American occupation to spur economic development led to this accelerated state of deforestation in the Philippines. During this period, far more forest was lost than in the preceding four and a half centuries of Spanish occupation.

The Marcos regime continued the process and added a new aspect to the Philippine fauna - exotic hoofed stock. Seeing African wildlife during a summit meeting in Kenya in 1976, President Ferdinand E. Marcos established a game sanctuary on Calauit Island in the northern Palawan Faunal Region, ordering the relocation of all the island's human inhabitants. The following year, he stocked the island with giraffe (*Giraffa camelopardalis*), zebra (*Equus* sp.), eland (*Tragelaphus oryx*), waterbuck (*Kobus ellipsiprymnus*), bushbuck (*Tragelaphus scriptus*), impala (*Aepyceros melampus*), topi (*Damalliscus lunatus topi*), and Grant's gazelle (*Gazella granti*). This monopolized the whole 37.6 sq km (14.5 sq. mi.) of the island. The family also used this new reserve for hunting, though not hunting of their new African wildlife. Instead, they hunted native wildlife, including the critically endangered Calamian deer (*Axis calamianensis*) (Fig. 2). All but the latter two of the exotic species thrived, and by the early 1990's several hundred individuals of introduced species were roaming Calauit.

After the Marcos period, the government sustained the protection of this area and banned hunting, which enabled the Calamian deer population to increase. The government was less effective in preventing re-colonization of the island by its former human inhabitants, who also rapidly increased in numbers. Predictably enough, there was also an upsurge in poaching activity, and recent reports indicate crashes in numbers of Calamian deer as well as many of the exotics.

The San Diego Zoo has entered into a partnership in order to set up a captive breeding component for plans to safeguard the Calamian deer against extinction. An official agreement was drawn up. In 1996, 15 deer were sent on breeding loan to San Diego, where their numbers trebled in less than two years. However, the subsequent expiration of the covering agreement has stalled the project by preventing surplus animals from being sent to other zoos on breeding loan. This has forced the San Diego Zoo to stop breeding until a new agreement can be signed. Ironically, it is the introduction of new wildlife protection legislation in The Philippines that has hampered the process. This legislation has to be finalized before any new agreements can be signed and breeding loans sanctioned.

Happily, the conservation program for Philippine spotted deer (*Cervus alfredi*) has proved somewhat less problematic. A 1985 survey throughout its limited known distributional area in the West Visayan islands established that this handsome, distinctive, yet very poorly known deer had disappeared from at least 95% of its range, including three of the five islands on which it had been documented to occur. Small numbers survived only in the more remote parts of Panay and Negros islands that retained forest cover, but the few remnants were still subject to continued habitat attrition and intense hunting pressure.

These concerns, plus recommendations arising from this survey, led to the creation of a special conservation program for Philippine spotted deer, which was initiated in 1990. Two local spotted deer rescue and breeding centers have been set up on Negros and one on Panay. Over the past 12 years, more than 30 spotted deer have been "rescued" and taken in by the project for rehabilitation and breeding. These founders are acquired as they become available. Some have been donated by private owners who occasionally keep these animals as pets. A few have been placed in the centers after confiscation by the relevant government authorities. Chiefly, these animals are orphans of deer killed illegally by hunters (Fig. 3) or adults, that often bear serious snare wounds. Hunting, selling, or local transport of Philippine spotted deer or their meat is illegal; so is maintenance by private individuals without a special permit.

One of the spotted deer program's very successful breeders came from a cage in a scrap metal yard where he had lived for six years. Another was a tame doe reluctantly given up by the owner of a small restaurant, where she had been tethered to a line of "space invader" machines for the preceding two years. At last count, more than 50 spotted deer were in these centers plus about 60 more in a small consortium of collaborating zoos and breeding centers in Europe. Hopefully, some 15 will go to the United States or Australia in the near future. These partners also provide funding and "in-kind" support. This goes toward maintenance and development of the Philippine

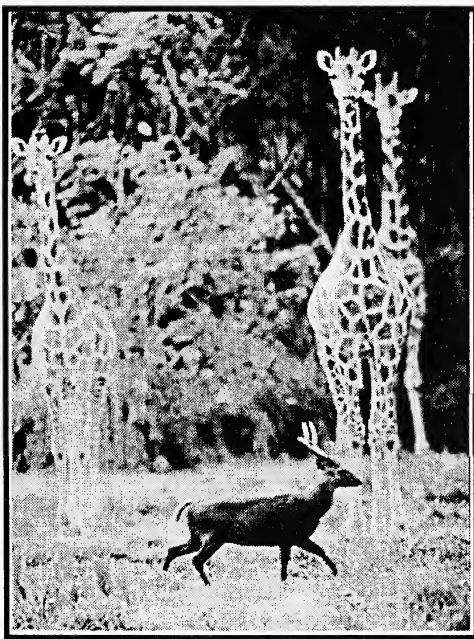


Fig. 2. Native Calamian deer prances past introduced giraffes in the "Calauit Island Game Preserve and Wildlife Sanctuary" (photo by Roland Seire)

centers and also other local conservation work. Zoos from other continents may set up additional breeding havens in the future. Agreement renewal in 1998 allowed the White Oak Conservation Center in Florida to become the first U. S. partner.

Conservation awareness efforts in The Philippines on the islands with the deer have brought donations of animals and, even more importantly, have greatly increased awareness and interest in the conservation of a whole range of wildlife species unique to these islands. The new focus has led to initiation of similar projects for a variety of other highly threatened species including the Visayan warty pig (*Sus cebifrons*), fruit bats, cloud rats, owls, hornbills, and sailfin lizards. Success of the spotted deer project is attributed largely to local involvement. Local people manage local centers and are backed up by education programs in their local areas. When these key local people are capable and caring, then interest and resources from outside can sustain the projects.

Headquartered in both Manila, The Philippines, and Cambridge, England, Oliver orchestrates development of new projects implemented by local partners. He also functions as liaison between international partners who support these projects. Through Fauna & Flora International (www.fauna-flora.org), he can gather and disburse funds. On a very personal level, he has also used his own considerable talents as an artist by making posters for the education mission of his involvement. Used with Oliver's Houston Zoo lecture, some of these pictures helped illustrate Philippine wildlife species in the context of their natural environment. Thus, the audience got a clearer view of the fragile communities of species that conservation work in this country of islands seeks to protect.

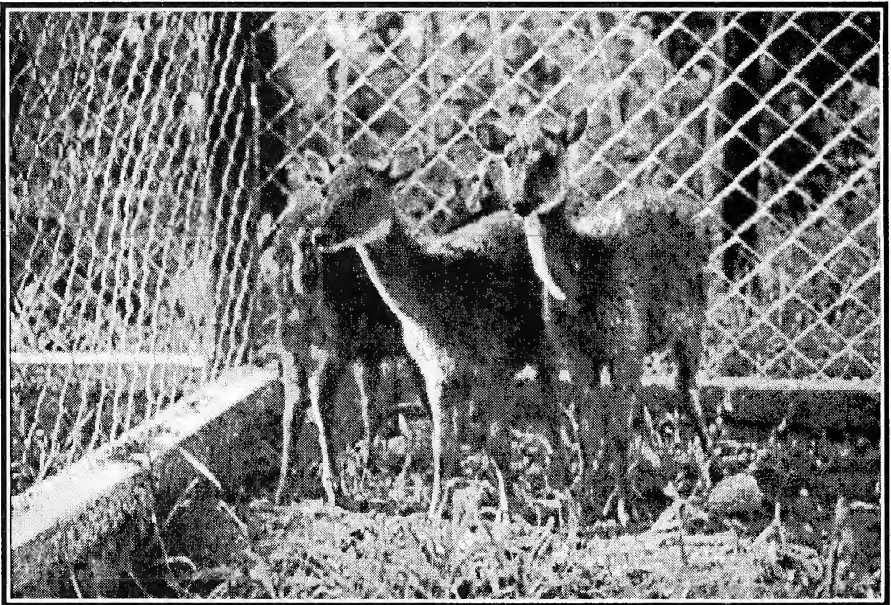


Fig. 3. Three orphaned fawns rescued from hunters (*photo by William L. R. Oliver*)

The Indianapolis AZK Chapter

The Indianapolis Chapter was able to support several conservation organizations in 2002 that included BOS USA and Zoodoms Iguana Project.

One member was sent to Riverbanks Zoo to learn more about raising Green aracaris. We also helped two Chapter members attend the AAZK Conference. We hope to do much more this year.



Our 2003 officers are

President.....Bruce Elkins
Vice President.....Tammy Root
Secretary.....Cheryle Duguay
Treasurer.....Kelly Hodge

Columbus Zoo AAZK Chapter

Newly elected officers for the Columbus Chapter are:

President.....Shelley Roach
Vice President.....Michael Zedekar
2nd Vice President.....Adam Felts
Treasurer.....Audra Gibson
Secretary.....Laura Fictelman



Chapter News Notes

Jacksonville AAZK Chapter

Elections were held in December. Our Officers for 2003 are:

President.....Allison Cox
Vice President.....Melody Cooke
Treasurer.....Lisa Gates
Secretary.....Nicole Porter

In 2002, our annual Bowling for Rhinos event was our most successful yet, raising over \$5000. During our zoo's Halloween Spooktacular event, our Chapter manned our face-painting booth and raised \$950. We have also taken over the recycling program for the zoo and have allocated all proceeds from recycling to purchasing enrichment supplies.



In October, we held our first Wolf Awareness Week program for guests and plan to make it an annual event. In 2003, we are also planning to celebrate International Migratory Bird Day focusing on the nesting colony of Wood Storks on zoo grounds. --Allison Cox, President

What's your Chapter been up to lately? Drop a line to Chapter News Notes and fill us in on your activities and projects, new officers, your fundraisers, etc.

Sniffing Out a Path to Enrichment

By Anna Miller, Explorer,
Little Rock Zoo, Little Rock, AR 72205

William K. Baker Jr., Curator
Little Rock Zoo, Little Rock, AR 72205

ABSTRACT:

Environmental enrichment studies improve both the lives of captive animals and the education of the public. An experiment was conducted to test the reactions of a pair of warthogs (*Phacochoerus aethiopicus*) to the urinary samples of several species. It was hypothesized that the urinary samples would increase the overall activity level, predator samples would cause a negative reaction, and non-predator samples would produce a more positive reaction. Activity levels appeared to increase only with the non-predator species. With leopard and lion samples, the effect was a decrease in overall activity.

Key Words: Environmental enrichment, scents, *Phacochoerus aethiopicus*

Introduction

In recent years, environmental enrichment has become a more complex and important facet of the zoological industry. Because of a rising concern for the well-being of captive creatures, enrichment has become a key factor in the care of any specimen that a zoo may have, be it large or small. Enrichment provides the animals with stimulation of the mind and body, letting them have an important break from the tedium of their usual activities. Not only does it allow for a greater activity level, but enrichment can also help the creature hone skills that it uses in the wild but often lacks an outlet for in the typical zoo setting.

The experience of patrons is directly linked to the experience of the animals: bored animals equal bored humans. This relationship was validated in a study, published in The Shape of Enrichment, which states that “research indicates that enriched zoo environments are valued by zoo-goers, and that enrichment can help zoos further their public relations and education goals” (Shapiro, 1997). A natural environment with an active animal is appealing to the public and keeps them coming back. This of course is not only profitable for the zoo, but it is also a valuable educational experience for the patrons. Thus, the benefits spread to everyone when the animals’ environments are enriched.

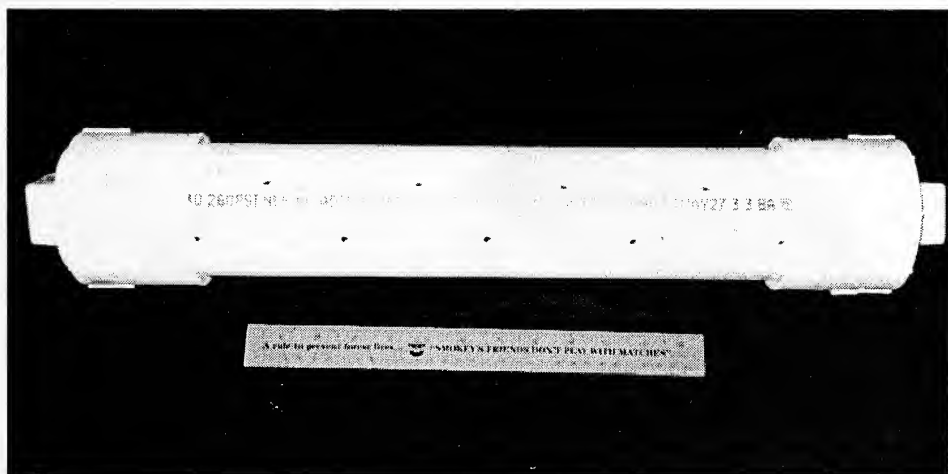
The remaining question is how to enrich the captive environment. The most feasible and cost-effective way is by using what a zoo has already. One of these existing resources is that of scent. In the wild, one of the main methods of communication is through marking areas with scent and thereby claiming them. Several studies have been conducted in this area. One, published in The Shape of Enrichment, was conducted with African lions (*Panthera leo*) at the Houston Zoological Gardens (Baker, 1997). Eight prey species and two adversary species were identified, and fecal samples from these species were placed in the lion habitat, each approximately five meters from the other. Then, the lions were released into the area and were videotaped as they discovered and reacted to the samples (Baker, 1997). There was “increased activity and social interaction” throughout the experiment, as well as 48 hours of “investigative behavior” and “social activity at diminished levels,” even after the samples had been removed (Baker, 1997). Studies have also been performed to test the reaction of hedgehogs (*Erinaceus europaeus*) to badger (*Meles meles*) feces in their usual foraging area (Ward, 1997). When tested in pens, the hedgehogs avoided the area “tainted” with badger feces for up to four days, but foraged freely in areas containing non-predator feces (Ward, 1997). However, free-ranging hedgehogs “showed a reduction in foraging effort in response to badger odour over periods of five to 30 min, but no evidence of site avoidance over a 24-h period” (Ward, 1997). Both of these studies show that using scent as a stimulus in enrichment programs could be an effective and low-cost way of inducing natural behavior in captive creatures.

Despite extensive research into the information available on environmental enrichment, not a single source was found that mentioned warthogs (*Phacochoerus aethiopicus*). True, they are not the most attractive of animals, with their protective warts and nearly hairless hides, but they are nevertheless important to the savanna ecosystem (Estes, 1991). The warthog exhibits great intelligence in its antipredatory behavior, which consists of fleeing to a nearby “underground refuge” and at the last moment turning about so that should the predator attempt to follow the warthog into the hole, it will be faced with two sets of dangerous tusks (Estes, 1991). Some of the main predators of the warthogs include, in order from most predation to least: African lion (*Panthera leo*), African leopard (*Panthera pardus*), cheetah (*Acinonyx jubatus*), wild dog (*Lycaon pictus*), and hyena (*Crocuta crocuta*) (Cumming, 1975). Warthogs’ primary food sources are grasses of most sorts, as well as woody undergrowth (Cumming, 1975).

In this experiment, the effects of urinary samples of various species on the behavior of warthogs were tested. One hypothesis in this study was that the addition of these scents would cause a higher level of activity in the 1.1 warthog pair. The second hypothesis was that they would have a negative response to the predator urinary samples (i.e. vocalization, avoidance of area marked, etc.). Third, while the non-predator samples would cause an increase in activity, it would not necessarily be a negative response.

Procedure

The test subjects were a 1.1 warthog pair located in the Hoofed Mammal Area of the Little Rock Zoo. They remained in their usual living quarters and environment for the duration of the experiment. For stimuli, two urine samples from each of the following was used: lion, giraffe, leopard, and the 0.1.3 warthogs that were housed in a separate enclosure. The urinary samples were collected on the day of the observation by soaking each up with woodwool (chosen for its availability, compatibility, and organic nature) and stored in resealable bags for transport. The sample was then placed in an enrichment device (a PVC pipe with eight holes drilled in an alternating zigzag pattern on each axis and threaded caps on each end) and into the warthog environment.



PVC Pipe used as holder for various scents in warthog enrichment study at Little Rock Zoo. PVC pipe measures 24” long by 3” in diameter (61cm x 7.6cm).

The 1.1 warthogs were videotaped for 60 minutes and then the sample was removed. A minimum of three days passed between each placement to allow the previous odor to be completely dissipated before a new stimulus was added. Each species’ samples were placed in the warthog environment twice during the experiment.

Experiment Timeline of Events

- Day 1 (09/26): pilot data collection
- Day 2 (10/17): 60 minute baseline (no new stimulus)
- Day 3 (10/19): 60 minute baseline (no new stimulus)
- Day 4 (11/02): placement of Stimulus 1A (warthog) and observation
- Day 5 (11/07): placement of Stimulus 2A (leopard) and observation
- Day 6 (11/11): placement of Stimulus 3A (giraffe) and observation
- Day 7 (11/15): placement of Stimulus 4A (lion) and observation
- Day 8 (11/19): placement of Stimulus 1B (warthog) and observation
- Day 9 (11/23): 60 minute control (enrichment device without scent)
- Day 10 (11/27): placement of Stimulus 2B (leopard) and observation
- Day 11 (12/04): placement of Stimulus 3B (giraffe) and observation
- Day 12 (12/08): placement of Stimulus 4B (lion) and observation
- Day 13 (12/19): 60 minute control (enrichment device without scent)

When the videotapes were observed, the behaviors of the 1.1 warthogs were recorded (see Appendix C). These observations were taken at 15-second intervals. Inter-rater reliability was used to check for reliability of the codes and to prevent experimental bias. The percentage of agreement across the behaviors was 85%. The percentage of agreement for the "interaction with enrichment device" behavior, however, was 100%.

Results

One extraneous factor that might have affected results was the diminishing sunlight and warmth as the seasons changed. However, as Appendices A and B show, this did not alter activity level. When the pair was active, their activity differed widely. To reflect this, they are presented separately. (The complete data set is included in Appendix D.)

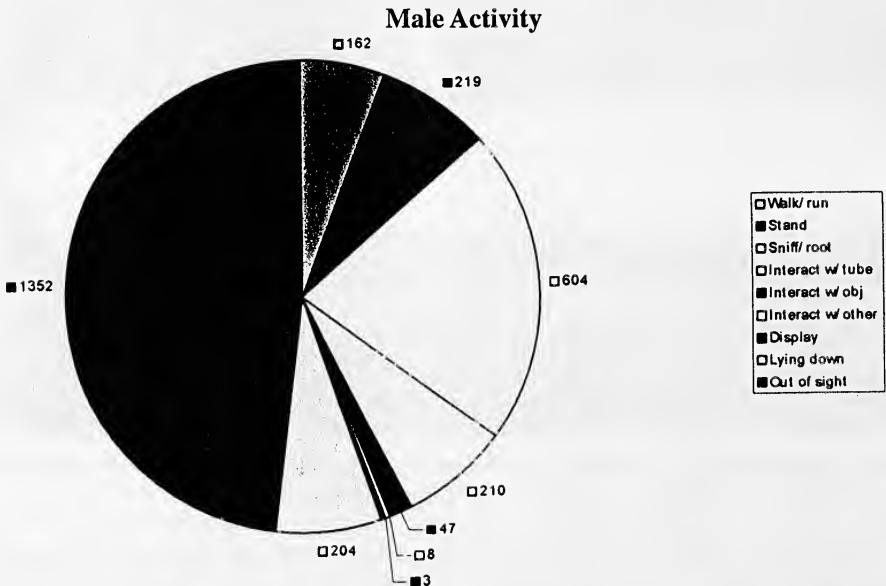


Figure 1: The numbers shown here represent the number of times each activity was observed. This was favored over percentages in order to show all behaviors, no matter how rarely they occurred.

Female Activity

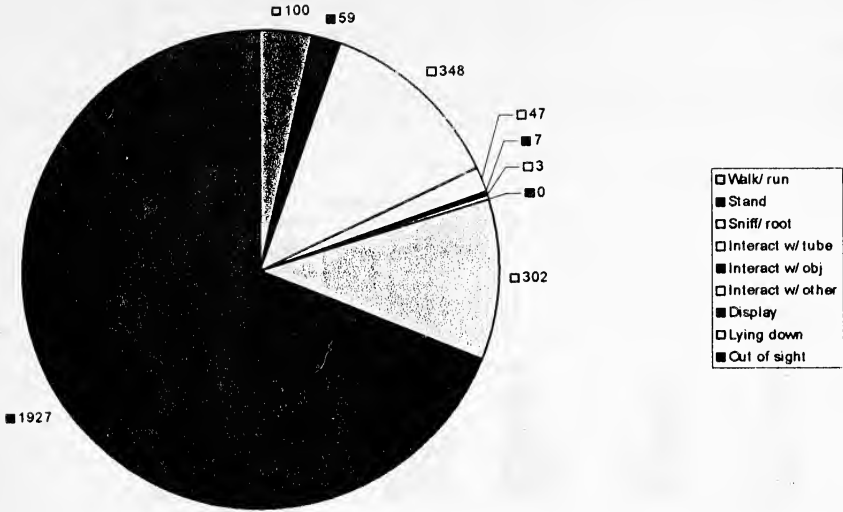


Figure 2: The numbers shown here represent the number of times each activity was observed. This was favored over percentages in order to show all behaviors, no matter how rarely they occurred.

The first hypothesis was that the introduction of the enrichment devices would cause an increase in activity levels. The second was that the pair would react negatively to the predator samples. Lastly, the reaction to the non-predator samples would be a heightened activity level not including a negative response. Figures 3, 4 and 5 deal with these hypotheses.

Male Activity vs. Active With or Near Device

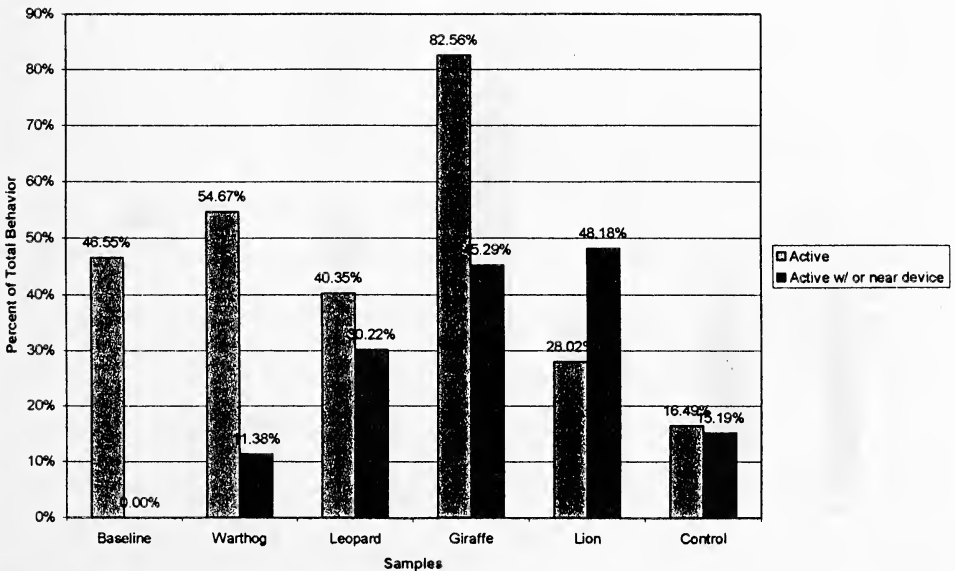


Figure 3: "Active" represents the percentage of total time spent in some activity other than inside/out of sight or lying down. "Active w/ or near device" represents the percentage of active behavior spent interacting with or within 1- feet of the enrichment device.

Female Activity vs. Active With or Near Device

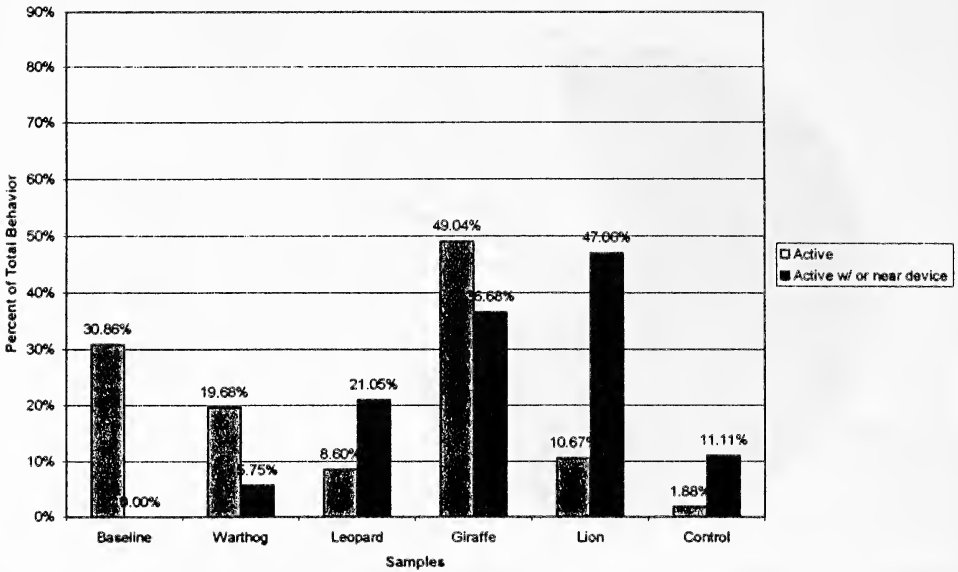


Figure 4: See caption for Figure 3.

Pair Active vs. Active With or Near Device

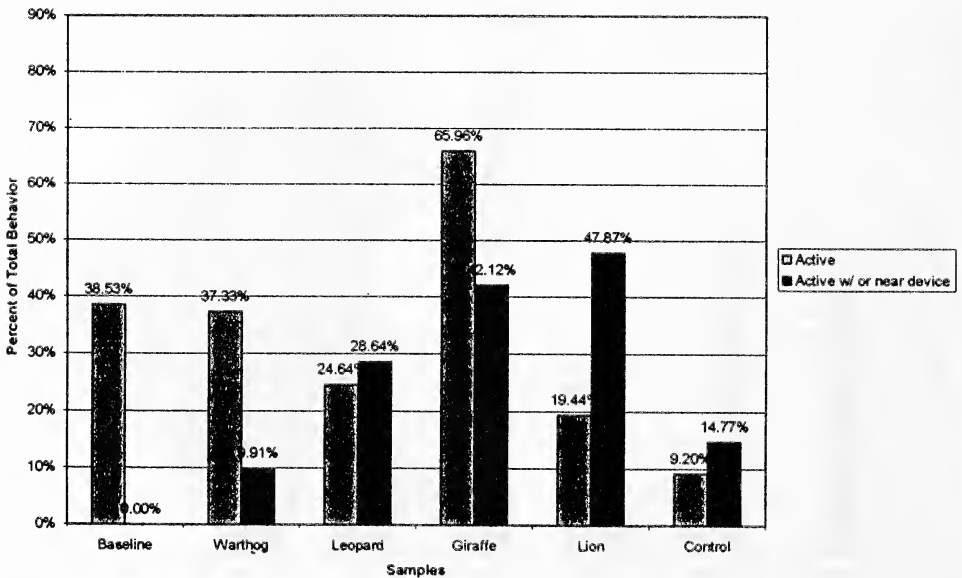


Figure 5: Figures 3 and 4 combined and averaged.

The subject pair were most active in the presence of the giraffe samples, second most active in the presence of the warthog samples, and least in the presence of the leopard and lion samples. However, the highest levels of interaction with and proximity to the enrichment device itself were demonstrated during the lion samples, followed by giraffe and then leopard. They interacted with and were near the enrichment device least when the warthog sample was present.

When the total activity level is divided into specific activities, the activity that is subject to the most change is sniffing and rooting, as shown below in Figures 6 and 7.

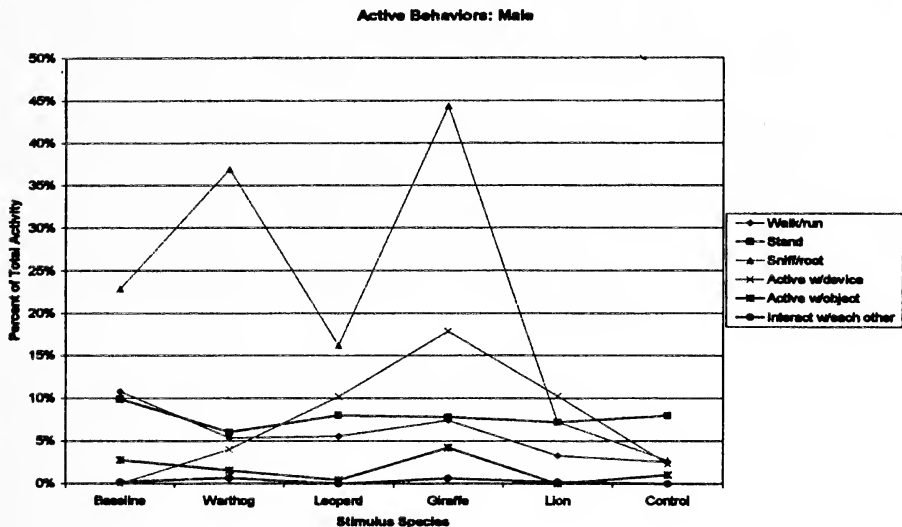


Figure 6: Each of the male's activities (excluding the most infrequent) is displayed across each set of observations.

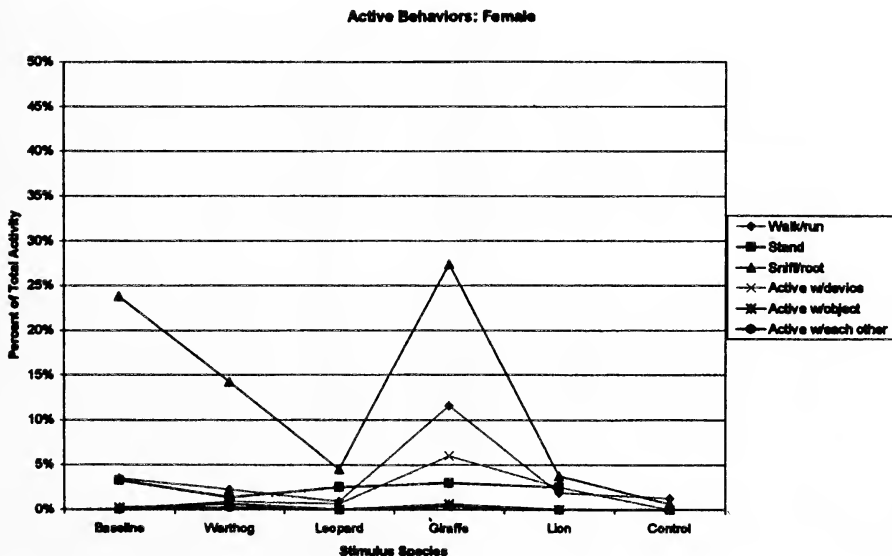


Figure 7: See caption for Figure 6.

Discussion

The warthog pair's reaction to the scent samples was complex. Activity levels appeared to increase only with the non-predator species. The activity that held most sway over total activity level was that of sniffing and rooting, a strongly exploratory action. The effect of lion and leopard samples was a decrease in overall activity instead of the hypothesized increase in negative behavior or distress such as vocalization or retreat into the night house. However, given that the goal of enrichment is to increase activity levels, anything that is associated with a decrease in activity could be described as a negative reaction. In addition, the presentation of an empty device as a control was associated with the lowest activity level of all. The introduction of the enrichment device may have had the opposite effect when the device stopped being associated with a scent. The pair may have become habituated to the device and withdrew when it was no longer a source of new stimulation. This could have serious implications for how enrichment devices such as this one are used.

The effect of the predator scent was more pronounced with the lion sample than with the leopard. This may be explained by the social habits of lions and leopards. While lions travel in prides, leopards are solitary creatures. Theoretically, a single leopard presents less of a threat than a pride of lions, and so the lion sample likely held more clout than the leopard sample. Also, as previously stated, leopard ranks second in the overall level of predation of warthogs and lion the first (Cumming 1975). However, as this 1.1 pair of warthogs has been raised in captivity, and thus has had no previous known experience with these predators, this hypothesis poses an interesting question concerning the concept of inherited instinct.

The male showed an increase in activity when presented with either of the non-predator samples. His enthusiasm and the female's relative disinterest in the 0.1.3 warthog samples could be explained by their familiarity: the female knew the mother's scent and was only concerned with that of the young, while the male recognized his mate's scent. However, both he and the female had extraordinarily high activity levels with the giraffe samples. A reason for this result might be linked to the role of giraffes on the savanna. Based on information presented in Nature: "Cheetahs in a Hot Spot" (aired on AETN on January 20, 2002), it seems that the giraffe acts as a sentry for smaller creatures because of its extraordinary height. Thus, when a giraffe is present, one may hypothesize that the nearest predator is out of visual range. As said previously, this poses an interesting question and would be a good point for further research.

If further research were done, the gender of each animal that supplied the sample would be recorded and, if the animal were female, whether or not she was in estrus when the samples were collected. A wider range of species would be used as stimuli, including more non-predator samples. The observations would be done at a point in the year where the seasonal changes are gentler than those of late autumn and early winter. The sample and control/baseline observations would be staggered in order to prevent habituation. Also, an enrichment device would be filled with some sort of treat in order to compare the reactions to the promise of food to that of predation.

Conclusion

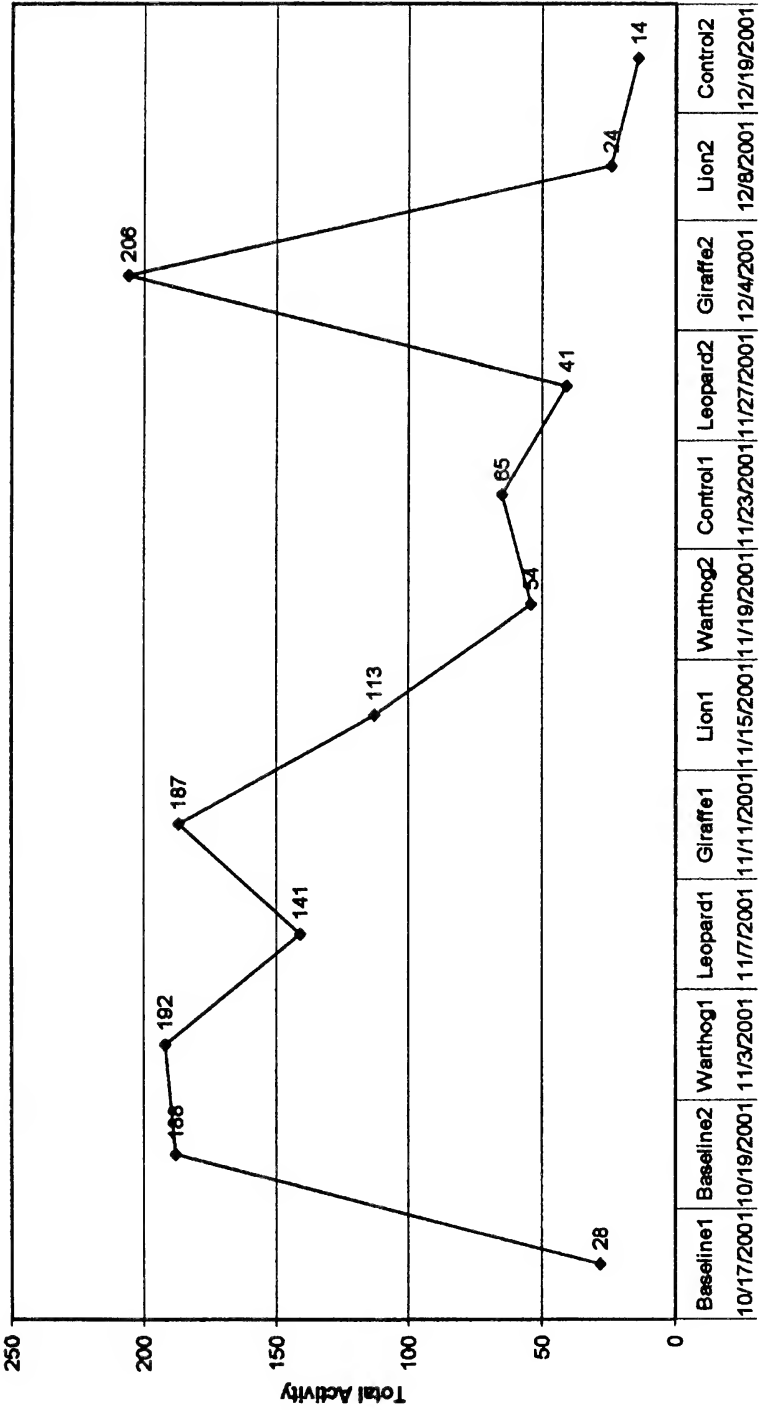
This study demonstrates that scent samples can function as an effective form of enrichment for warthogs. However, care must be taken with the choice of sample species. Some species may lead to an increase in activity while others can lead to a decrease in activity. Keepers should also be aware that various samples effect males and females in different ways. The more pronounced reactions of the warthogs to the giraffe and lion samples are an interesting point for further research.

Acknowledgements

Thanks to Mr. W.K. Baker, Jr., and Mr. Robert Sinteff, both of the Little Rock Zoo, for their extensive help throughout this study, and to James Miller for the cover image.

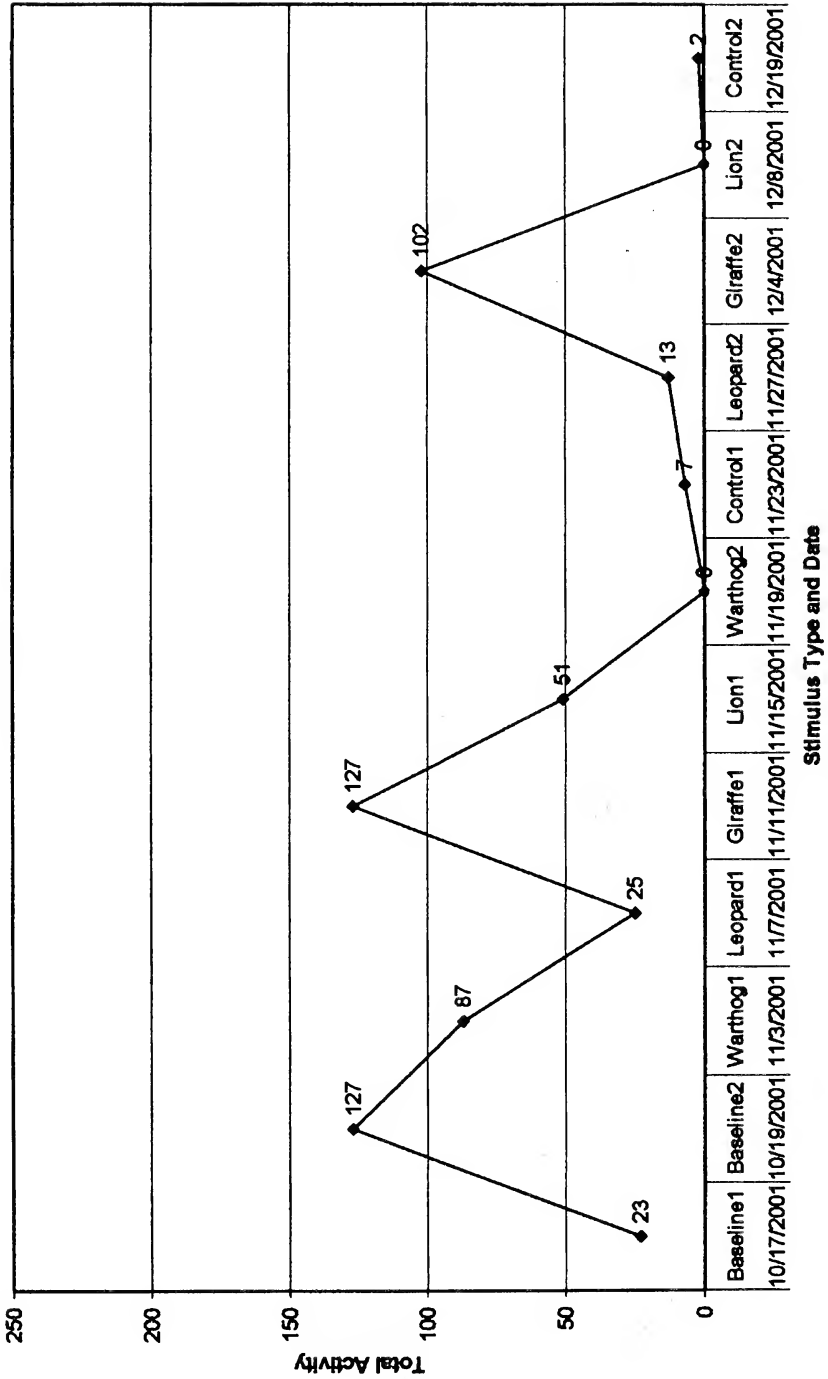
Appendix A

Activity Over Time: Male



Appendix B

Activity Over Time: Female



Appendix C

DATE: _____

Tape Date: _____

Tape Time: Start: _____

Condition: _____

Stop: _____

Behavior	Male	#	Female	#
Lying down				
Walking/runnin g				
Standing				
Sniffing/rooti ng				
Interact w/tube				
Interact w/object				
Interact w/each other				
Inside/out of sight				
Display				

Appendix D

1/21/2002

Male

Behavior	Baseline	Warthog	Leopard	Giraffe	Lion	Control	Total
Walk/run	50	24	25	35	16	12	162
Stand	46	27	36	37	35	38	219
Sniff/root	106	166	73	211	35	13	604
Interact w/tube	0	18	46	85	50	11	210
Interact w/obj	13	7	2	20	0	5	47
Interact w/other	1	3	0	3	1	0	8
Display	0	1	0	2	0	0	3
Subtotal	216	246	182	393	137	79	1253
Lying down	204	0	0	0	0	0	204
Out of sight	44	204	269	83	352	400	1352
Total	464	450	451	476	489	479	2809
Near tube	0	10	9	93	16	1	129
Tube Total	0	28	55	178	66	12	339

1/21/2002

Female

Behavior	Baseline	Warthog	Leopard	Giraffe	Lion	Control	Total
Walk/run	17	10	4	54	9	6	100
Stand	16	6	11	14	12	0	59
Sniff/root	116	63	20	128	18	3	348
Interact w/tube	0	4	3	28	12	0	47
Interact w/obj	1	3	0	3	0	0	7
Interact w/other	0	1	0	2	0	0	3
Display	0	0	0	0	0	0	0
Subtotal	150	87	38	229	51	9	564
Lying down	302	0	0	0	0	0	302
Out of sight	34	355	404	238	427	469	1927
Total	486	442	442	467	478	478	2793
Near tube	0	1	5	56	12	1	75
Tube Total	0	5	8	84	24	1	122

1/21/2002

Combined

Behavior	Baseline	Warthog	Leopard	Giraffe	Lion	Control	Total
Walk/run	67	34	29	89	25	18	524
Stand	62	33	47	51	47	38	556
Sniff/root	222	229	93	339	53	16	1904
Interact w/tube	0	22	49	113	62	11	514
Interact w/obj	14	10	2	23	0	5	108
Interact w/other	1	4	0	5	1	0	22
Display	0	1	0	2	0	0	6
Subtotal	366	333	220	622	188	88	3634
Lying down	506	0	0	0	0	0	1012
Out of sight	78	559	673	321	779	869	6558
Total	950	892	893	943	967	957	11204
Near tube	0	11	14	149	28	2	408
Tube Total	0	33	63	262	90	13	922

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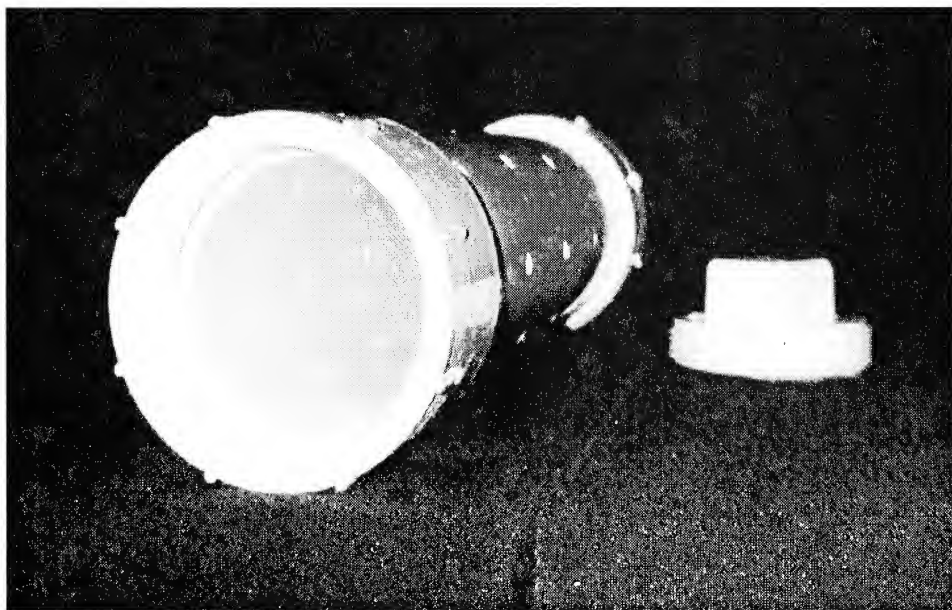
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The PVC pipe was drilled with eight holes in an alternating zig-zag pattern on each axis. Once the scented woodwool was inserted, the pipe was enclosed with two threaded caps. Diameter of pipe is 3 inches (7.62cm)

American Association of Zoo Keepers, Inc.

Administrative Office, 3601 S.W. 29th St., Ste. 133, Topeka, KS 66614-2054

The following items are available from the AAZK Administrative Office on a PREPAID basis:

PINS AND CHARMS: Enameled three-quarter inch pins and charms with the official AAZK logo are done in the same colors as the AAZK patch. The charms are suitable for necklaces. Price per pin or charm is \$5.000.

PATCHES: AAZK Patches are available for \$5.00 each.

CONFERENCE PROCEEDINGS: The following issues available at the prices listed.

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Bongo Insitu Project

The Bongo SSP and Rare Species Conservatory Foundation (RSCF) have made significant progress with The Mountain Bongo Repatriation Project (MBRP). Bongo SSP Coordinator, Ron Surratt (Fort Worth Zoo), traveled to Kenya in January to meet with Kenya Wildlife Service officials and to survey the forest property of the Mount Kenya Game Ranch (MKGR) where the bongo breeding sanctuary will be located. The MBRP will send 22 bongos back to MKGR to establish a breeding group of bongo in a fenced forest facility. Our goal is to produce

offspring from these bongo that are suitable for reintroduction onto Mount Kenya. Construction of the forest facility will begin in May 2003 and the first repatriation of bongo to Kenya is targeted for January 2004. Paul Reillo of the Rare Species Conservatory Foundation has been successful with fund-raising efforts, although more funds are needed. Additional financial support is crucial by July 2003 to stay on track for this project. Please join us in this monumental conservation project. For more information regarding institutional participation in this landmark project, please contact Ron Surratt, Bongo SSP Coordinator, at 817-759-7160 or rsurratt@fortworthzoo.org.

Support the Conservation of Elusive Beautiful Antelope

*A report from Kenyan AAZK Member Lawrence Ng'ang'a Ngugi,
Animal Keeper, Mt. Kenya Animal Orphanage, Nanuiki, Kenya*

Bongo are among the most affected, rare and elusive and beautiful antelope. The bongo (*Tragelaphus boocerus eurceros*) inhabits exclusively the high altitude forests and was found in most of such forests at the turn of the last century. They are now only confirmed living in the Mount Kenya forest.

In an effort to salvage the situation, and have bongos once again roaming in the Mt. Kenya Game Ranch LTD, located in the foothills of this sacred but treacherous mountain, an ambitious breeding program has been initiated. This program is based on relatively new technology in wildlife circles here in Africa. For a few decades this procedure, embryo transfer, has been used in livestock production. This is, in essence, an intra-specific embryo transfer as opposed to inter-specific in wildlife. The latter is certainly more complicated. In this case the common eland (*Tragelaphus taurotragus oryx*) is used as the surrogate mother. Bongo and eland have an almost equal gestation period of nine months. Therefore the eland carries and nurses the physically different bongo calf. The herd of bongos is, however, also breeding naturally but the rate of increase is quite limited due to the following:

- The total number of bongos in the herd
- Sex ratio of the herd
- Male aggression towards the females
- Age at first breeding
- Natural deaths due to old age

To me embryo transfer enhances breeding between suitable pairs thereby reducing chances of inbreeding, and promoting genetic vigor. Another project is to bring back some of the Bongos that are in zoos to the Mt. Kenya Forest. The U.S. is working hand in hand with Mt. Kenya Game Ranch for this project to succeed. This will be more fascinating as the repatriated bongos will now have their natural habitat. With considerable success it could be the solution to bringing this very endangered wildlife back to viable and naturally sustainable populations. Here at the Mt. Kenya Game Ranch the bongo is just the beginning, for the list of wildlife facing extinction in Africa is getting longer.

Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 10th of each month to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive their AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our Fax is (785) 273-1980; e-mail: akfeditor@zk.kscoxmail.com< Listing may be sent as MS Word attachment. We are no longer located at the Topeka Zoo, so please note new address to avoid delays in processing.

Animal Keeper... The full-time keeper is responsible for a variety of animal species, primarily reptiles and small animals used for education programs. The position includes daily care of on-exhibit and off-exhibit animals, exhibit maintenance, and record keeping. The keeper occasionally helps out in other areas throughout the zoo, as well as does some supervision of seasonal keepers. The keeper assists in developing, preparing for, and occasionally presenting programs. The zoo offers the opportunity for involvement in many aspects of zoo operations. Requires a Bachelor's degree in an animal-related field, a commitment to using animals for educational programs, and a positive, enthusiastic attitude. Salary \$8.75/hr plus excellent benefits. Send resumé and letter by **30 April** to Dave Webster, Assistant Director, Scovill Zoo, 71 S. Country Club Rd, Decatur, IL 62521-4470. For more information about this position, e-mail Dave@decparcs.com.

Zookeeper/Guide... Four (4) seasonal: one (1) position beginning immediately through December 2003; one (1) position April-October 2003; two (2) positions May-October 2003. Duties include, but not limited to, giving lectures to the public on various mammals and reptiles, participating in the daily feeding, care, maintenance and enrichment of mammals and reptiles. Must be willing and able to do physical labor, requires good oral communication skills, strong audible voice, neat appearance, and must work well with co-workers. Salary \$240 per week. Lodging, utilities and uniforms furnished. Hours fluctuate according to the season. Must be willing to work weekends and holidays May-October, six days per week. Off-season, five days per week. Send resumé to: Soco Gardens Zoo, Jim Miller, 89 Evans Cove Rd., Maggie Valley, NC 28751. Please include cover letter and letters of recommendation from immediate supervisors, preferably zoo-related.

General Working Supervisor...for Mammal, Reptile and Bird Departments. Must have degree, four (4) years management, good people and communication skills. Experienced caregiving for many types of species, able to speak publically to large audiences, while interacting with animals in a full contact setting is necessary. Lifting up to 100 lbs may be required. Weekend and holiday work is necessary, according to shift. Salary depends on experience. Full benefits. Please mail or fax resumé to: Dean Harrison, Out of Africa Wildlife Park, 9736 No. Ft. McDowell Rd, Scottsdale, AZ 85264. Phone (480) 837-6683, Fax (480) 837-7379. Visit our website at www.outofafricapark.com. Position open until filled.

Elephant Handler...requires minimum of three (3) years experience working with elephants. Responsible for the care and husbandry of two female African elephants (19 years old) in fre contact. Must be able to do rides, demonstrations and give talks to the public. Looking for an eager, energetic, friendly, self-motivated person. Housing available. Send resumé to: Natural Bridge, P.O. Box 88, Natural Bridge, VA 24578 or Fax 540-291-1891 or phone 540-291-2420 or email NatursalBridgeZoo@hotmail.com<

Service Opportunities or Internships... Interested in learning more about big cats and a career path? Consider a service opportunity at TCWR. Two (2) positions currently available at Tiger Creek Wildlife Refuge, Tyler, TX. Interns are utilized for animal care positions through a qualification system. Commencement date: Open. Duration: Month by Month. We provide: Room & Board, Materials and Curriculum, Indoctrination and Safety Training, Opportunity for full-time paid animal keeper positions (after training). See additional information and application at our website - www.tigercreek.org<

Avian Internship... Become familiar with daily activities involving our colony of African penguins, exotic birds, and reptile collection. Duties include food preparation, exhibit maintenance, and creation of enrichment devices. Candidates should be comfortable with public speaking and have course work in biology/psychology. Must be able to work outdoors and lift 50 pounds. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid. Interested candidates should submit a cover letter

and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Kyla Fox, One Riverside Drive, Camden, NJ 08103.

Marine Mammal Internship... Learn daily activities involving animal care and training with our Seal Team. Duties include food preparation, exhibit cleaning, creating enrichment devices and observing training. Candidates should be comfortable with public speaking, have course work in biology/psychology, prior animal experience, be able to work outdoors, and lift 50lbs. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid. Interested candidates should submit a cover letter and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Nicole Begley, One Riverside Drive, Camden, NJ 08103.

Reptile Internship... The Kentucky Reptile Zoo, a nonprofit organization, is seeking a student intern for the 2003 Fall season. **The deadline for application for the Fall internship is 1 June 2003.** The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will **not be involved** in the handling of any venomous reptiles. Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. The intern will be required to work both Saturday and Sunday, with days off during the week. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Interns have also been successful in finding zoo keeper positions, with a hire rate of over 95%! Benefits include experience with the most extensive and diverse collection of snakes in the United States, housing, and \$55/week to cover expenses. Personal transportation is recommended. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March - May), or SUMMER (June - August), or FALL (September - November) is required. To apply send a cover letter, resumé, and at least two (2) (preferably 3) references to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L & E Railroad, Slade, KY 40376. Or send via email to: kyreptil@mailhost.mis.net<

Deadlines for applications each year are: SPRING - February 15th; SUMMER - March 1st; and FALL - June 1st.

Environmental Interpretation and Wildlife Care Internship... At Trailside Museums & Wildlife Center, Bear Mountain State Park, Bear Mountain, NY. This internship will allow the qualified individual an opportunity to work in our museums/zoo/nature trail setting, matching academic and career interests. Responsibilities include: 1) provide care for permanently injured or orphaned wildlife (mammals, birds, fish, amphibians, reptiles) in zoo setting under the supervision of senior zookeeper; prepare food and diets; maintain enclosures and exhibits; practice enrichment; 2) Interact with the public answering questions, interpreting exhibits, possibly developing and offering short interpretative talks. Qualifications: enthusiasm, comfortable handling animals, motivation to learn, 18 years or older, preference given to college student looking for experience in the care of wildlife and in environmental interpretation and acting as a friendly naturalist along the Appalachian Trail. Start: Summer Internship - mid-May through mid-August; Fall Internship - late August/early September through early November. Schedule: At least three (3) days a week, including at least one weekend day. Internships are not paid positions but knowledge gained and written evaluations gladly given; possible course credit if you can arrange it through your educational institution. No housing available. If interested contact: Environmental Educator, Trailside Museums & Wildlife Center, Bear Mountain State Park, Palisades Interstate Park Commission, Bear Mountain, NY 10911; phone: (845) 786-2701 ext. 293; email: barbara.thomas@oprhpc.state.ny.us<

Positions posted with AAZK, Inc. may also be found on our website at www.aazk.org

Also, you may want to check out the AZA Member Institution job listings at <http://www.aza.org>

Animal Keepers' Forum, Vol. 30, No. 4 175

VOLUNTEER OPPORTUNITIES IN BELIZE

The Wildlife Care Center of Belize is a private wildlife holding facility for native confiscated and rescued wildlife. One of the primary goals of the Center is to rehabilitate and repatriate howler monkeys and parrots. The Center is non-profit and operates entirely on donations and research grants. Volunteer opportunities exist for responsible, energetic and self-funded individuals. Preference is given to those with zoological experience and an understanding of established guidelines for the reintroduction of wildlife. Volunteers must commit to a minimum of two weeks (longer periods are preferable), follow directions well, and be capable and confident working alone.

Work Description

Three to five days of training are required before working alone.

Long work days – generally 6 a.m. to 6 p.m.

Demanding physical labor and lots of walking.

Hot, humid, buggy conditions – rain and mud during the wet season.

Work may involve collection of natural food items, frequent feedings, behavioral data collection, fieldwork and camping depending on time of year, construction and maintenance work – chopping bush, cage building, construction of caging, maintenance of buildings and clearing trails.

Expect very little “hands-on” with animals.

Fieldwork is generally conducted between February and June of each year.

Requirements

Proof of a negative TB test or vaccination within 6 months of arrival.

Resumé and e-mail addresses of two (2) references.

Current passport.

Sufficient funds for the time period.

Minimum two-week commitment but longer is preferred.

Healthy, physically fit, and a non-smoker.

Must be able to follow verbal and written instructions, follow protocols exactly and work well alone.

No vaccinations are required, however malaria prophylaxis is recommended.

General Expenses (Approximate US\$)

Airfare varies – direct flights available on American, US Airways, TACA or Continental from Miami, FL; Houston and Dallas, TX; and Charlotte, N.C.

Departure tax \$40.00.

Taxi from airport to bus station in Belize City \$20.00.

Bus fare to Monkey Bay Wildlife Sanctuary \$6.00.

Camping at Monkey Bay \$5.00/night.

Meals run between \$3.00 - \$10.00 each. Monkey Bay offers some meals with advance notice, or there are several restaurants within walking distance. No cooking or refrigeration is available.

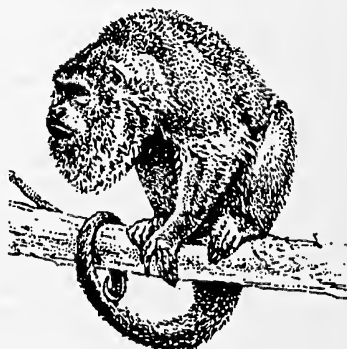
Over one month stay requires an extended visa at a cost of 25.00 per month.

Interested persons should contact:

Robin Brockett

P.O. Box 431, Belmopan, Belize, Central America

e-mail: wildlifecarecenter@yahoo.com



AAZK Membership Application

check here if renewal []

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Address _____
City _____ State/Province _____ Zip _____

U.S. Members

\$35.00 Professional
Full-time Keepers

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Full-time Keepers Only

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an animal facility*

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(requires Board approval)*

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Canada regardless of category*

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Full-time Keepers

\$60.00 Professional
Renew for 2 years & save
Full-time Keepers Only

\$35.00 Affiliate
Other staff & volunteers

\$35.00 Associate
*Those not connected with
an animal facility*

**\$60 or up - Individuals
Contributing/Canada**

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Library Only
\$35.00 Library
*Available only to public
& university libraries*

Zoo Affiliation (if any) _____

Zoo Address _____

Title _____

Work Area _____

My check is enclosed (AAZK, Inc.) Please charge my credit card

MASTERCARD VISA Card # _____ - _____ - _____

Name on card _____ Expiration date _____

Signature _____

Mail this application to: AAZK Administrative Offices, 3601 S.W. 29th, Suite 133 Topeka, KS 66614-2054. Make checks/money orders payable to AAZK, Inc. Must be in U. S. FUNDS ONLY. Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.

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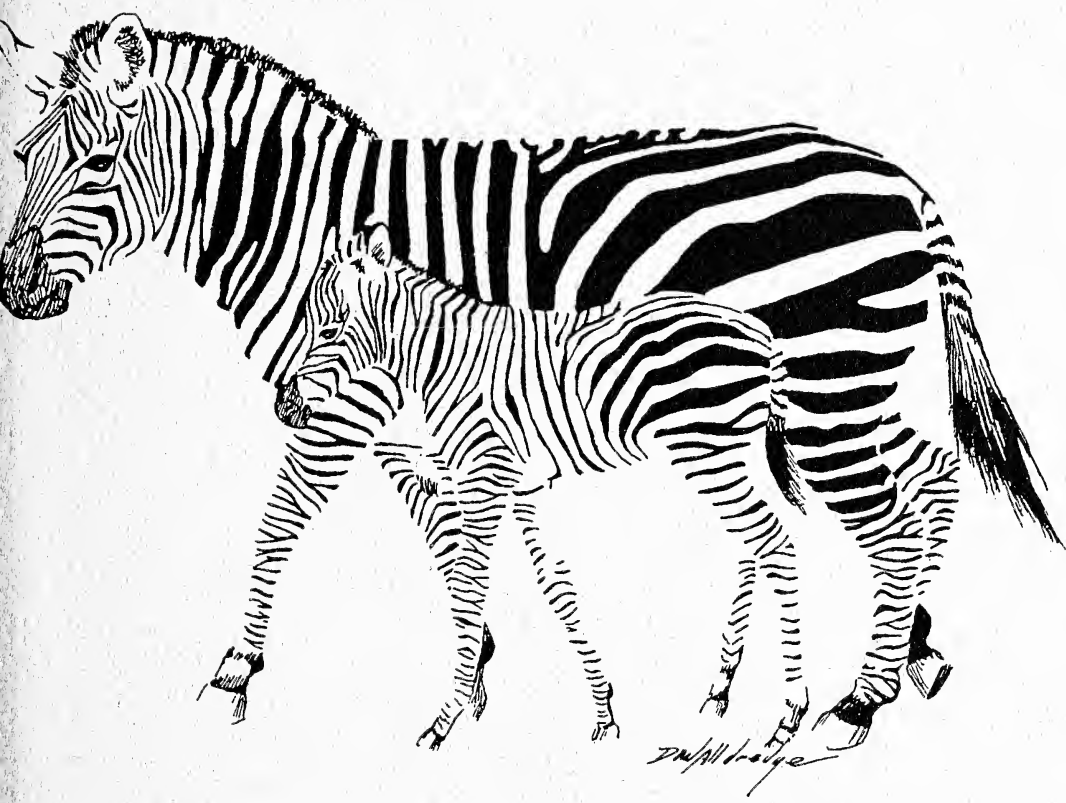
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ANIMAL KEEPERS' FORUM



The Journal of the American
Association of Zoo Keepers, Inc.

MAY 2003

Managing Editor: Susan D. Chan • **Associate Editors** • Gretchen Ziegler, Sequoia Park Zoo & Kayla Grams, Lovell, WY • **Enrichment Options Coordinators:** Jan Roletto, Eureka, CA & Dawn Neptune, Utah's Hogle Zoo • **Legislative Outlook Column Coordinator:** Georgann B. Johnston, Sacramento, CA. • **ABC's Column Coordinator:** Diana Guerrero, Big Bear Lake, CA • **Reactions Column Coordinator:** William K. Baker, Jr., Little Rock Zoo • **The Water Column Coordinators:** Dan Conklin and Kevin Shelton, The Florida Aquarium and Bruce Elkins, Indianapolis Zoo

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also serves as AAZK Liaison to the American Zoo & Aquarium Association (AZA)

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AAZK PUBLICATIONS - CONTINUING DATA COLLECTION

Biological Values for Selected Mammals, 3rd Edition - Jan Reed-Smith, Lake Odessa, MI

AAZK Enrichment Notebook - Lee Houts, Folsom City Zoo



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About the Cover.....

This month's cover features a Grant's zebra (*Burchelli bohmi*) mother and foal drawn by Dan Alldredge, a keeper at the Mesker Park Zoo, Evansville, IN. Shown here are mother "Checkers" and foal "Jeffar". This species ranges from northern Zimbabwe to the Sudan grasslands. They are heavy grazers of grasses, even having high crowned teeth for endurance in chewing silica grasses. A zoo diet usually consists of hay and alfalfa pellets. They are considered to have a black base color with white contour stripes and exhibit short upright manes with terminal hairs on their tails. There is an average of 15-20 in a family grouping led by a dominant stallion. Females have a hierarchy led by the dominant mare, especially during migrations. Males will take up a rear guard during times of danger. Family members seem to recognize each other by smell, sight and voice even when mixed with other family groups and wildebeest. Lifespan is approximately 25+ years. Major predators are lions and hyenas. They weigh between 500-600 lbs. and can run at speeds up to 40 mph. This species is not endangered at present. Thanks, Dan!

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Manuscripts submitted either on disk or electronically as attachments to an email should be submitted in Microsoft WORD. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white or color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo. Photographs may be submitted electronically as either JPEG or TIFF file attachments.

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980; email is akfeditor@zk.kscoxmail.com

Deadline for each regular issue is the 10th of the preceding month.

Dedicated issues may have separate deadline dates and will be noted by the editor.

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@zk.kscoxmail.com< You may reach Susan Chan and *Animal Keepers' Forum* at: akfeditor@zk.kscoxmail.com<

AAZK Website Address: www.aazk.org

BFR Website: <http://bfr.aazk.org>

Scoops & Scuttlebutt



AAZK Chapters/Members Make Donations Supporting AAZK National, the AAZK Endowment Fund, and the International Congress on Zookeeping

The AAZK Board of Directors and the Administrative Office staff wish to thank the following AAZK Chapters and individuals for their donations to the Association. Designations on how they wish their donations allocated are as follows: General Operating Fund (GOF); Conservation, Preservation and Restoration Grant Fund (CPR); AAZK Endowment Fund (EF); International Congress on Zookeeping (ICZ); or Undesignated (U). These donations make it possible for the Association to carry out its projects and programs in continuing zoo keeper education and conservation.

We thank the following (in no particular order): Thomas C. Roy, AAZK Affiliate membr from Southfield, MO, \$100.00 (U); Minnesota Zoo AAZK Chapter (Apple Valley, MN) \$200.00 (ICZ); El Paso Del Norte AAZK Chapter (El Paso, TX) \$200.00 (GOF).

AAZK Conservation, Preservation & Restoration Grant Committee Needs Your Input

The CPR committee is looking for two new members. If you are interested please contact Jan Reed-Smith at jrsotter@iserv.net or jsmith@colszoo.org. Applicants need to have the ability to review grant applications and meet deadlines. While it is helpful, it is not required that you have previous experience doing research.

The CPR Committee also would like to know how we can make this program more user friendly. We received no applications last year! If you have some suggestions or ideas let me know.

---Jan Reed-Smith, CPR Chair, Columbus Zoo, Powell, OH

Rhino/Tapir Survey Info Sought by Researcher

I am currently conducting a survey on captive rhinos and tapirs. The survey is to assess the effects of zoological enclosures and husbandry practices on the breeding success and health of rhinos and tapirs in captivity. I have sent survey forms to AZA zoos in the United States that are currently housing rhinos and tapirs, but I would like to expand the survey to international institutions. I am urging that all institutions housing rhinos and tapirs, including ones in the U.S. that I might have missed, to please take the time to access and fill out the survey. International participation in this research will provide valuable data for all zoos, which will be shared upon completion of this project. The Tapir Preservation Fund was kind enough to post the survey on their website. Here is the link to the survey: <http://www.tapirback.com/tapirgal/profile/nordstrom/> Please contact me if you have any questions. Thank you so much for your time and assistance. Submitted by Lisa A. Nordstrom, Dept. Forest, Range & Wildlife Sciences, Utah State University, Logan, UT 84322-5230; (435) 755-2947; email: slv2v@cc.usu.edu

AAZK Announces Availability of Granting Programs - Deadline June 1st!

The American Association of Zoo Keepers announces the availability of two granting opportunities:

The Conservation, Preservation and Restoration (CPR) Grant – This \$1,000.00 grant is designed to encourage and support efforts in conservation conducted by keepers and aquarists in zoological parks and aquariums around the world. Members of AAZK, Inc. in good standing are eligible to apply and receive this grant. The member MUST have an active role in the conservation effort submitted for consideration. The division of this grant between two projects is at the discretion of the CPR committee. Funds are made available only after a progress report and receipts have been submitted.

The Zoo Keeper Grants in Research – Two \$1,000.00 grants are funded annually to encourage and support noninvasive research conducted by keepers in zoo and aquarium settings. The principal investigator MUST be a full-time keeper and a member of AAZK, Inc. in good standing.

Deadline for application submission for either grant option is **1 June 2003**. Successful grant recipients will be announced at the AAZK National Conference in Fall 2003. The grant cycle runs from 01 January 2004 to 31 December 2004. For further information or an application see the AAZK Website at www.AAZK.org, or contact Jan Reed-Smith, AAZK Grants Committees' Chair, jrsotter@iserv.net, 616-693-2680, Fax: 616-374-3263. Please specify which grant program you are interested in.

Election Reminder - Ballots Due by June 1st

All AAZK Professional members were sent an election ballot packet on 10 April. This included biographical sketches on the ten individuals running for the four open Board of Director positions, a ballot and a return envelope. The deadline for return of the ballots is **1 June 2003**. Make certain to return the ballot in the envelope provided as the ballots go directly to the CPA firm that is doing the tabulating. They do not come to AAZK Administrative Office. Also, DO NOT include anything in the envelope except the ballot. And only vote for four candidates - marking your ballot for more than four candidates will invalidate it. Returning your ballot is your opportunity to have a say in who will be making policy for AAZK, Inc. as we move into the future.

Newly elected Board members will serve a four-year term commencing at the close of the 2003 Cleveland Conference and running through the conclusion of the 2007 Conference. Jan Reed-Smith and Linda King are leaving the Board; Kevin Shelton and Jacque Blessington are seeking reelection. Other candidates seeking election to the AAZK Board of Directors are: Jeannette Beranger, Roger Williams Park Zoo; Norah Farnham, Woodland Park Zoo; Shane Good, Cleveland Metroparks Zoo; Laurie McGivern, Dallas Zoo; Diane Olsen, Moody Gardens; Beth Pohl, Columbus Zoo and Aquarium; Shelly Roach, Columbus Zoo and Aquarium; and Rick Smith, St. Louis Zoological Park.

Orangutan "Aazk" Dies at Fresno Zoo

For those of you who have been around for awhile, you will remember the female orangutan named "Aazk" who graced the logo for the Eight National AAZK Conference held in Fresno, CA in 1981. "Aazk" was 12 years old at the time of the Fresno conference.



"Aazk" died at age 33 on 20 March, 2003 following surgery that found an ovarian tumor and bladder disease. She never awoke from the anesthesia and follow-up blood tests and an ultrasound indicated kidney damage.

She was said to have had a dominant personality, but trusted her keepers. She was often seen giving rides on her back to the siamangs that shared her exhibit. She was also housed with 1.2 other orangs. She never produced any offspring.

Keepers became concerned for her welfare when she began to lose interest in food, seldom left her night quarters and stayed away from other animals.

Chaffee Zoological Gardens (formerly Fresno Zoo) has lost a popular animal and AAZK, Inc. a bit of its history.

From the President.....

Wow, have things been busy! The AAZK Board of Directors have been very busy lately with lots of new projects and goings on. We met in early April for our mid year meeting with lots of agenda items. I am happy to say we got through all of them. You should be proud of your Board. They have been working hard to enhance the Association and your interests. I would like to give you a few highlights of the meeting and what's happening in AAZK.

One of the most exciting things to occur in this Association during my time on the Board is the joint AAZK/AZA training course "Advances in Animal Keeping." The instructors are working hard to make this a great course. We have been talking a lot about this over the past year and for good reason. The information that will be taught in this course will challenge and teach students in many subjects. In fact I suspect we have crammed way too much into the syllabus. The course will be taught with several other AZA courses in a new model for a traveling school. The first course will be held April 24-30, 2004 hosted by the Houston Zoo. Be sure to start talking with your managers now to budget for next year. I look forward to seeing you there!

We reviewed and approved a new and improved website. Board member Denise Wagner and our web designer have been working hard on this project for months and it has paid off. The new site is awesome. It has a whole new look with nice background colors, rotating pictures, and no more "splash page." It has been reconfigured to be much easier to navigate as well with a good sidebar menu, reminders, and everything is cross linked so getting around is much easier. The animal data forms (ADT, EDT and OCDT) will be posted in Acrobat Reader® format for everyone to use, so no more excuses for not sending information to recipients of your facility's animals. We are also working on a method for job listings to be posted in "Opportunity Knocks" more easily and timely. Soon there will be a way to renew your membership online. Information previously included on the AAZK Enrichment website as well as information from the AAZK Animal Behavior Management Committee will also be part of the newly formatted website. By the time you read this many of these changes may already be in place. Be sure to check it out at www.aazk.org!

Lastly I am really excited about the growing interest among the membership in becoming involved on the national level. This is best demonstrated by the number of nominations for the Board of Directors this year. There are 10 nominees on the ballot and each of them would be an excellent choice for the position. You have some tough decisions to make when those ballots arrive at your door. Please take the time to read the nominees qualifications and vote. Participation is what keeps this association strong. I can't believe that my four years is already over. We have accomplished so much and started many other projects. Jacque Blessington, Vice-President, and I are running for reelection to continue the work we have started. I appreciate your support in the past few years and look forward to the prospect of serving another term. We are generating more opportunities for each of you to contribute to the Association and your chosen career. Thanks for listening and remember to take care of yourselves as you care for your animals.



Kevin R. Shelton, AAZK President
The Florida Aquarium
Tampa, FL



Coming Events

Tenth Annual International School for Elephant Management - 25 April - 8 May 2003 - Riddle's Elephant and Wildlife Sanctuary, AR, USA. For persons having worked full-time with elephants for at least one year. For registration information please contact elephantsanctuary@alltel.net

Third Annual Rhino Keeper Workshop - 15-18 May 2003 in Denver, CO. Hosted by the Rocky Mountain AAZK Chapter and the Denver Zoo. Will include speakers and a day at the zoo. For further information contact Rocky Mountain AAZK Chapter President Dave Johnson at (303) 376-4900 or email Workshop Chair Chris Bobko at rhinoqueen@yahoo.com

2003 Elephant Ultrasound Workshop for Wildlife Veterinarians - 4-8 June 2003. At Riddle's Elephant and Wildlife Sanctuary, Greenbrier, AR, USA. For further registration information please contact elephantsanctuary@alltel.net

Association of Avian Veterinarians 24th Annual Conference & Expo - 25-29 August 2003 in Pittsburgh, PA. To be held at Pittsburgh's Westin Hotel and the David L. Lawrence Convention Center. Theme is "Take Flight in Pittsburgh". Program will include lectures, practical labs and Master Classes. To view the entire program and to register on the web, visit www.conferenceoffice.com/AAV. To contact the AAV Conference Office, email AAV@conferenceoffice.com; phone (303) 756-8380; fax (303) 759-8861.

American Zoo and Aquarium Association (AZA) Annual Conference - 7 - 11 September 2003 in Columbus, OH. Hosted by Columbus Zoo and Aquarium. For more information contact Patty Peters: e-mail ppeters@colzoo.org

2003 AZAD Annual Conference - 9-14 September 2003. Hosted by Omaha's Henry Doorly Zoo, Omaha, NE. Interested parties may contact Judy Sorensen at 10969 North Lakeshore Dr., Blair, NE 68008 or by email at howard@nfinity.com

30th National AAZK Conference - 26-30 September, 2003. Hosted by the Greater Cleveland AAZK Chapter and Cleveland Metroparks Zoo. Watch for further information in upcoming issues of *AKF*. Registration and Hotel Forms may be found in April issue and will appear again in the July *AKF*.

Elephant Managers Association Conference - October 2-5, 2003 - Hosted by Knoxville Zoological Gardens, Knoxville, TN. For more information, call (865)-637-5331, ext. 359 or e-mail bhargis@knoxville-zoo.org

First International Conference on Zookeeping in 2003 - The Netherlands - Will be held between 2-10 October at Birdpark Avifauna. For further information please visit: www.iczoo.org

American Association of Zoo Veterinarians - 5-9 October, 2003 in Minneapolis, MN. Program sessions include Reptiles and Amphibians, Avian Medicine, Nutrition, Pharmacology (Nutriceuticals and Phytochemicals), Vaccinations, AZA Programs (SSP/TAG Veterinary Advisory Updates), Advances in Technology and Diagnostic Testing, Case Reports and Practice Tips, Aquatics and Marine Mammals, Hoofstock, Carnivores and Small Mammals, Hospital Administration and Leadership, Primates, Pathology, Conservation Medicine, and Emerging Diseases. There will also be a poster session, veterinary and graduate student paper competitions, and workshops/wet labs. For additional information, visit the AAZV website at www.aazv.org or contact Wilbur Amand, VMD, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; Phone (610) 892-4812; Fax (610) 892-4813; email AAZV@aol.com

Sixth International Conference on Environmental Enrichment - 2-7 November 2003 in Johannesburg Zoo, South Africa. Sixth International Conference on Environmental Enrichment in Johannesburg Zoo, South Africa. Hosted by the Johannesburg Zoo. For more information on the conference, including fees, registration facilities, reduced flights and pre- and post-conference tours, please go to www.jhbzoo.org.za or contact Mathew van Lierop at mathew@jhbzoo.org.za or on +83 600 2677.

International Serow Summit : 2nd Symposium on Capricornis and its Related Species 2004 (Dates not confirmed). Japan Serow Center. Details when available. Please contact: gozaisho@oregano.ocn.ne.jp

Post Your Coming Event Here - email to akfeditor@zk.kscoxmail.com

In Memoriam . . .

Dr. Ulysses S. Seal, mentor, guide and friend to the global zoo community, 1927 - 2003.

Dr. Ulysses S. Seal was known as "Ulie" to everyone who met him. Somehow no one could know him and call him "Dr. Seal" although everything about him commanded respect, starting with his distinguished physical appearance, his charisma, his intellect, his focus and his clear dedication to saving biodiversity everywhere on the globe. To be an individual of such stature and achievement as he was and still manage to be so simple and friendly that nearly everyone became immediately comfortable around him was one of his greater talents.



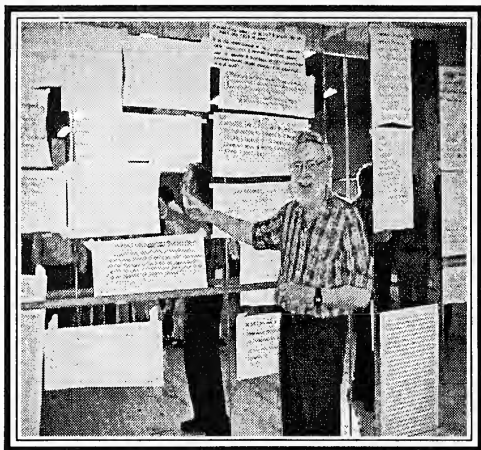
*Ulysses S. Seal III
1927-2003*

Ulie was a scientist (ironically researching cancer) at the V.A. Medical Centre in Minneapolis, Minnesota, U.S.A. when he developed an keen interest in wildlife, both in the wild and in captivity. He had a project involving wolves, tiger contraception, and in his research of zoo records for birth, death and parentage information he discovered a big lacunae. Zoos didn't have sufficient records to conduct the kind of research needed for scientific breeding. It was then that Ulie developed the International Species Information System (ISIS), a central database for the world's zoo records, which has over 500 member zoos over the globe. Ulie served as chairman of the Captive Breeding Specialist Group for many years, managing to get the name of the group changed to the Conservation Breeding Specialist Group which better reflected its true function. He published about 250 scientific articles and nearly 70 reviews and chapters of scientific books.

Dr. Seal has published more than 260 peer-reviewed journal articles, as well as 70 book chapters and reviews. His work with zoos (ISIS, Species Survival Plan, Tiger SSP) brought him honours starting in 1991 when he received the Marlin Perkins Award from AZA; the Chicago Zoological Society's President's Award (1992); Zoological Society of Antwerp's Gold Medal and Emory University's Emory Medal (1993); USFWS Great Lakes' Big Rivers Region Silver Eagle Award (1994). He was the proud recipient of the first Heini Hediger award from IUDZG (now WAZA) (1996). In 2001 the AAZV honoured him and he received the Species Survival Commission Peter Scott Award in 2002. Also in 2002, Chester Zoo awarded him their Gold Medal for Conservation and the Zoological Society of San Diego, their Conservation Award. In 2002, CBSG announced the creation of The Ulysses S. Seal Award for Innovation in Conservation. This last is most appropriate because U.S. Seal is just synonymous with innovation.

This writer was very fortunate to be close to Ulie and CBSG. Members of the Steering Committee of CBSG used to get these incredibly weighty briefing books every meeting and in between meetings which had an articles section. This section contained articles from every discipline imaginable and reflected Ulie's wide range of curiosity and reading. On the face of it, one might wonder why a particular article was included as it would seem to be remote from conservation issues. However, the fact that Ulie had included it provoked one to at least try to read it and always - ALWAYS - there would be something very significant in the article which would help us with our conservation activity. It would not be about wild animals or genes, perhaps, but about human behaviour, management skills, innovation. We learned to make things happen by reading these articles.

Ulie flew all over the world several times a year conducting Population and Habitat Viability Assessment PHVA and Conservation Assessment and Management Plan Workshops. He tried to go to all the zoo association meetings to network people and find out their problems. He rarely attended



Dr. Seal at Strategic Futures Workshop held at White Oak Conservation Center, Yulee, FL in 2002

a workshop or conference without generating some significant conservation activity - a training, a workshop, a scoping exercise, a reintroduction programme, or linking people with other people and projects they needed or could help. His enthusiasm and confidence were contagious: he made you feel as if you could do anything and then you just somehow did it. In my opinion, Ulie brought zoos into the 21st century more than any other individual. His conservation creations made it possible for zoos to be respectable in the conservation scenari; he gave them projects which contributed to conservation even if their breeding programmes could not. His objective from the very start was to link the zoo with the field, and he succeeded, if not in doing it in every country, at least in making people aware of the need to do it.

Not all zoo personnel know the impact Ulie Seal has had on their work. I feel very sad not to have him actually in the world. I hope I can write many things which will convey to the zoo community what a treasure we had. Ulie truly left his seal on conservation.

--Sally Walker,
Convenor, CBSG, South Asia

From Others Who Knew Him...

"Ullie has had a greater positive impact on conservation and the management of animals in the zoo than any other person in the last 50 to 100 years," said Lee Simmons, Director of the Henry Doorly Zoo in Omaha, NE. "He had this damned ability to bring people together, to get everybody focused on a common goal. You ended up working with people you didn't even like."

"He was truly one of those rare visionaries who made the world of conservation what it is today," said Lee Ehmke, Director of the Minnesota Zoo in Apple Valley, MN. "His greatest contribution has been his ability to link the efforts of the conservation work of zoos to the conservation of wildlife in nature."

"He imagined worlds that never were and he taught us to cooperate to build them," said Nathan Flesness, head of ISIS. "He saw zoos and aquariums as ambassadors for wildlife, not just entertainment."

Ulie Seal died of cancer at his home in Bloomington, MN on Wednesday, March 19. He is survived by his children Saralee, Ulie, Pam, Rebecca and Kathleen; a brother, Robert; a sister, Georgiana Cox; and nine grandchildren.

AZK, Inc. and its membership extends their heartfelt sympathy to Dr. Seal's family and his colleagues worldwide.

AAZK Announces New Members

New Professional Members

Erin Ward, **Franklin Park Zoo (MA)**; Lynne Flaccus, **The Chewonki Foundation (ME)**; Dianna Schemel and Kimberley A. Post, **Cape May County Zoo (NJ)**; Alexander Carr, **Staten Island Zoo (NY)**; David Schubert, **Rosamond Gifford Zoo (NY)**; Erin Estell, **National Aviary/ Pittsburgh (PA)**; Steven Gottfried, **Elmwood Park Zoo (PA)**; Janice Coakley, **North Carolina Zoological Park (NC)**; Cathetine Coker, **Riverbanks Zoo (SC)**; Sarah Chartier, Jennifer Bigner, Christina Gorsuch and Christina Davis, **Zoo Atlanta (GA)**; Jill Richardson and Robert Carl Frieg, Jr., **Jacksonville Zoological Garden (FL)**; Joel E. Fleming and Jennifer Robertson, **Lion Country Safari (FL)**; Carie Peterson, **Lowry Park Zoo (FL)**; Josh Randolph, **Birmingham Zoo (AL)**; Brad Huff, **Nashville Zoo at Grassmere (TN)**; Jay Eubanks and David Backus, **Knoxville Zoological Gardens (TN)**; Trudy Kuht, **Toledo Zoo (OH)**; Gretchen Ann, **Detroit Zoological Institute (MI)**; Dana DeBenham, **Howell Nature Center (MI)**; Melinda Robinett, **John Ball Zoo (MI)**; Brandie L. Gordon, **Lincoln Park Zoo (IL)**; Holly C. Lang and Nicole A. Linafelter, **Omaha's Henry Doorly Zoo (NE)**; Isaac W. Wyatt, **Audubon Zoo (LA)**; Mary McFarland, **Oklahoma City Zoo (OK)**; Laura Pike, **Denver Zoo (CO)**; April Anne Hyatt and Megan Ryder, **Cheyenne Mountain Zoo (CO)**; Gina M. Miles, **Wildlife World Zoo (AZ)**; Stephanie Kain, **Rio Grande Zoo (NM)**; Amelia Field, **The Living Desert (CA)**; Rachel K. Simpson, **San Francisco Zoo (CA)**; and Melissa Porter, **The Oakland Zoo (CA)**.

New Institutional Members

Zoo Academy - Cincinnati Zoo
Cincinnati, OH

Renewing Institutional Members

Great Plains Zoo
Sioux Falls, SD

Oregon Zoo
Animal Management Library
Portland, OR

Calgary Zoo Library
Calgary Zoo
Calgary, Alberta, Canada


Renewing Contributing Members

June L. Masek, Docent
Cleveland Metroparks Zoo
Cleveland, OH


Lynn Peckham, Docent
Los Angeles Zoo
Los Angeles, CA

Shirley Busch, Volunteer
San Diego Zoo
San Diego, CA

Amy Roberts, Curator
The Living Desert
Palm Desert, CA



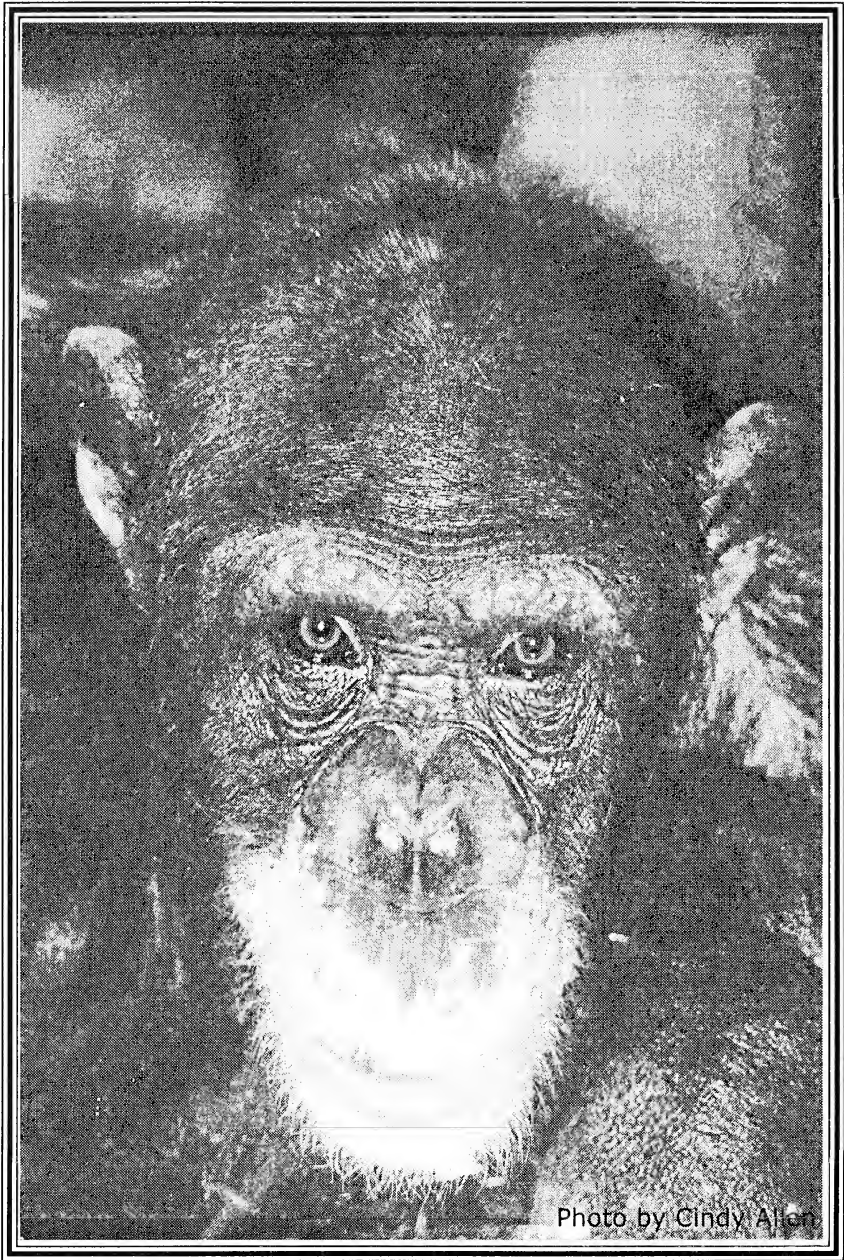
**THE
GOURMET
RODENT,
INC.™**



RATS AND MICE

Bill & Marcia Brant
6115 SW 137th Avenue
Archer, FL 32618
(352) 495-9024
FAX (352) 495-9781
e-mail: GrmtRodent@aol.com

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"Look into my eyes. You are getting sleepy. Repeat after me 'I want to go to Cleveland. I will go to the AAZK National Conference. The people in Cleveland are the greatest and know how to have a good time. I will register late and give them \$25 extra dollars because I have so much money and nothing else better to do with it.' Okay, I will snap my fingers and you will be ready to go to Cleveland in September."

2003 AAZK NATIONAL CONFERENCE
CLEVELAND, OHIO
SEPTEMBER 26-30, 2003

Strange SituationsWild Occupations



DEADLINES TO REMEMBER

1 July	Abstracts due
1 Aug	Conference registration (to avoid late fee)
25 Aug	Hotel reservations

CONTINENTAL AIRLINE DISCOUNT CODES

The discounts are 10% off Y and H fares and 5% off of all other fares. When booking your flights use these codes below:

For travel to Cleveland UPMV4T
For travel to Amsterdam VSCB5H

PRE AND POST CONFERENCE TRIPS

The details are still being ironed out, so be patient with us. We hope to have a registration form for them in the June issue of the *AKF*.

- Pre-conference: 25-26 September - a trip to the Detroit Zoo, overnight in Detroit, the next day at the Toledo Zoo, returning to Cleveland late Friday evening
- Post-conference: 1-2 October – a trip to the Laurel Highlands of PA, with an afternoon of whitewater rafting or traveling the hiking/biking trails of the highlands, the next day will be a visit to the Pittsburgh Zoo and National Aviary, returning to Cleveland in the evening

The costs of these trips are being determined. Any questions can be answered by Maureen Meslovich momeslo@cs.com or call (216) 661-6500.

Visit our website for updated information and you can download the conference registration form from there www.clemetzoo.com. If you are not electronically connected, the phone can be used (216) 661-6500 x4482. Please leave your vitals as well as your question or problem. Remember if you pay the conference registration fee by credit card, you will be registered but not charged until after July 1. Registration fees are non-refundable two weeks prior to the conference.

American Association of Zoo Keepers, Inc.
Administrative Office, 3601 SW 29th St., Ste. 133, Topeka, KS 66614-2054

The Following Items are Available from the AAZK Administrative Office on a PREPAID basis:

PINS AND CHARMS: Enameled three-quarter inch pins and charms with the official AAZK logo are done in the same colors as the AAZK patch. The charms are suitable for necklaces or French-hook earrings. Price per pin or charm is \$5.00.

PATCHES: AAZK Patches are available for \$5.00 each.

CONFERENCE PROCEEDINGS: The following issues available at the prices listed.

1980 Montgomery National Conference	\$2.00
1983 Philadelphia National Conference	\$2.00
1987 Milwaukee National Conference	\$3.50
1989 Syracuse National Conference.....	\$5.00
1991 Toledo National Conference.....	\$8.00
80, 83, 87, 89, 91 National Conference Proceedings Package	\$15.00
1992 San Diego National Conference.....	\$10.00
1993 Atlanta National Conference	\$10.00
1994 Omaha National Conference	\$10.00
1995 Denver National Conference	\$10.00
1996 Detroit National Conference	\$10.00
1997 Houston National Conference	\$15.00
1998 Indianapolis National Conference	\$15.00
1999 Portland National Conference	\$20.00
2000 Columbus National Conference.....	\$20.00
2001 Toronto National Conference.....	\$20.00
2002 Kansas City National Conference.....	\$25.00

Please send the following items(*indicate quantity*) to:

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Address _____

City _____ State/Province _____ Zip/Postal _____

PINS ____ CHARMS ____ PATCHES ____

PROCEEDINGS: 1980 ____ 1983 ____ 1987 ____ 1989 ____ 1991 ____ 1992 ____

1993 ____ 1994 ____ 1995 ____ 1996 ____ 1997 ____ 1998 ____ 1999 ____ 2000 ____

2001 ____ CONFERENCE PACKAGE ____

() Check enclosed – Make Payable to AAZK

() Please charge my credit card as listed below

Mastercard or Visa Number _____ - _____ - _____ - _____ Expiration Date _____

Name as it appears on Credit Card _____

(Please Print)

Signature _____

Prices given include postage for Domestic Orders Only. Canadian and Overseas orders should check with Administrative Office via email at aazkoffice@zk.kscoxmail.com for shipping costs.

AZA Offers New Courses in Professional Development



American Association of
Zoological Parks and Aquariums

Advance your career and increase the professionalism of your zoo or aquarium. The American Zoo and Aquarium Association's Board of Regents has some exciting new offerings, including a master's program. Take a look.

New Traveling Professional Development Program! The AZA Board of Regents, in conjunction with the AZA conference committees, will offer a Traveling Professional Development Program in Houston, April 24-May 1, 2004, as a second venue for course offerings. Courses scheduled for Houston include Conservation Education, Institutional Records Keeping, Managing Animal Enrichment and Training Programs, Population Management I and II, Advances in Animal Keeping in Zoos and Aquariums, and Developing Successful Field Conservation Programs. Courses scheduled for Wheeling, W. Va., in February 2004 include a revised Biology course, Creating Successful Exhibits, Managing for Success: Career Development, Managing for Success: Organizational Development and Principles of Elephant Management.

New Courses!

Advances in Animal Keeping in Zoos and Aquariums: This five-day course focuses on teaching the highest standards in animal husbandry with emphasis on problem solving and interpersonal skills; it promises to engage and inspire animal care professionals while providing them with a unique networking opportunity. The AZA Board of Regents and the Executive Board of the AAZK have been working in collaboration for two years on the creation of this course and are very excited with this exciting new educational offering, designed with the needs of our joint memberships in mind. April 2004 Traveling Professional Development Program, Houston. AAZK Professional members will also qualify for the AZA member rate.

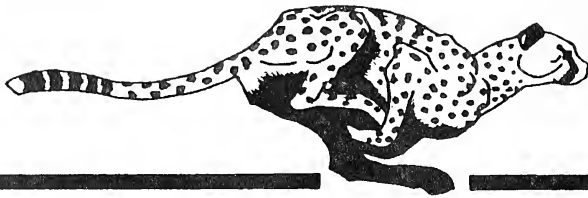
Amphibian Biology and Management: This five-day course provides a solid background in amphibian biology as it relates to husbandry, breeding, conservation and cooperative programs. Tentatively scheduled for April 2004, Detroit Zoological Park's National Amphibian Conservation Center.

Developing Successful Field Conservation Programs: This five-day course, designed for key conservation and education decision-makers, helps identify, develop, fund and implement new field conservation programs and enhance existing ones. The course emphasizes a team approach to attacking conservation problems that builds on the strengths of the individual institution. April 2004 Traveling Professional Development Program, Houston.

Improved! The former biology course has been revamped and will be offered for the first time in three years in February 2004. The interactive course will help you become more animal savvy by increasing your awareness of animal issues and challenges while becoming more effective collaborators with your animal staff. The course is directed at non-science staff, specifically public relations, human resources, finance, marketing and development staff and to anyone new to the industry.

New Master of Arts in Interdisciplinary Studies in Zoo and Aquarium Leadership! AZA has developed this graduate program with George Mason University. Students will be able to choose between tracks in Leadership in Zoo and Aquarium Collections Management, Leadership in Zoo and Aquarium Conservation Education, and Leadership in Zoo and Aquarium Administration. The program will consist of 36 credit hours. If you are interested in this degree and have taken AZA Professional Development courses for credit, you may be on your way to attaining this degree. We expect to offer this program by 2004, pending final approval by GMU.

For more information on any of these new offerings, please contact AZA's Training Administrator at aweider@aza.org or 301-562-0777, ext. 238.



REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

*By William K. Baker, Jr., Curator
Little Rock Zoo, Little Rock, AR*

Question

Are there any specific recommendations on capture techniques for smaller mammals?

Comments

By definition, small mammals are typical lighter weight specimens than what are traditionally found in mammal collections such as hoof stock, carnivores, and mega fauna. In my experience, lighter weight usually translates into "lightning fast small furred projectile". In short, they are faster than most animal professionals realize until they have actually had an opportunity to work with them. Good examples of this would be marmosets, tamarins, sugar gliders, flying squirrels, Prevost's squirrels, Kit foxes, Fennec foxes, margays and ocelots.

This necessitates using alternative means to capture and restrain for husbandry procedures or recapture in the event of an animal escape from a primary containment situation. By this I mean the use of dart guns (especially the older charge-driven styles) which are usually too much in terms of pressure related trauma from impact. Cast nets are not terribly effective as the animals simply move too fast for capture. Mist nets are not really suitable in captive husbandry applications due to the risk of excessive entanglement and injury, plus someone has to physically extract animals from the net, (the exception would be bats, where mist nets work great for day or night). Drop nets have the same problem as cast nets, the animals simply move too fast for a reaction, even when anticipating and leading the target animal.

This leaves very few options for capture, and of those left on the shelf each has its own strengths and weaknesses. The remaining choices would include the following: pole nets, net guns, and blow darts.

1. *Pole Nets* - This would be the most common capture net seen in the zoological industry. Pole nets come in a variety of sizes and meshes, which is dependent on the size, type, and weight of the animal. Options include cord locks, grips, extensions, and pole combinations. However, in my experience the penta-shaped heads offer real maneuverability in tight spaces. Almost always an effective option except when either the size of the specimen, aggression, or both prevent usage. When capturing specimens in an exhibit, two staff members are a plus to direct route of travel around the interior of the exhibit to the person with the net. Negative: Requires skill and serious communication.

2. *Net Guns* - Essentially these are rifles that have been modified to fire a projectile net over a considerable distance. They are typically offered in two models, air to ground capture and ground

capture. Either style requires advance training and practice to become proficient in their use. Highly effective against small to medium-sized mammals and very accurate at close range. These are not only nice for capture at ground level, but at reasonable distance can be used to net an animal in a tree or on a structure. Negative: Requires skill and advance training. Also, caution should be exercised when using this system on the “smaller” mammals, even it could be too much.

3. *Blow Darts* - Basically an aluminum tube that has been adapted to or manufactured specifically for capture purposes. A highly effective system that is quiet and unlikely to cause trauma to the specimen on impact. A much better choice than using a dart rifle at close range and extremely accurate. Negative: Requires skill, training, and patience.

Some final thoughts on all of this, the single best advice that I have is - Don't let them get out. Failing that I recommend exercising patience and caution. Don't rush the situation, rather outthink the animal, because it is unlikely that you will out maneuver it. Unfortunately, the best form of training is experience and this is one that you would probably want to avoid.

Commercial Suppliers:

Fuhrman Diversified, Inc. Nets
2912 Bayport Boulevard
Seabrook, Texas 77586

Margo Supplies Ltd. Net guns
P.O. Box 5400
High River, Alberta
Canada, T1V 1M5

Midwest Animal Capture Equipment, Inc. Nets
P.O. Box 1799
Lee's Summit, Missouri 64063

Wildlife Pharmaceuticals, Inc. Blowguns
1401 Duff Drive
Fort Collins, Colorado 80524

Next Month: Do you have any suggestions for stress management in the workplace?

If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054, Attn: Reactions/AKF.

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)

The Water Column

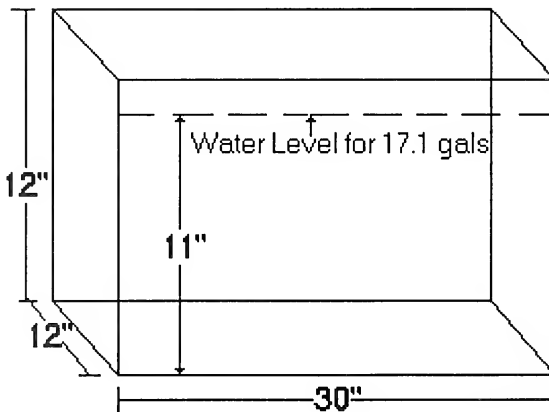
By

*Dan Conklin, Senior Biologist, Florida Aquarium
Bruce Elkins, Curator of Waters, Indianapolis Zoo
Kevin Shelton, Associate Curator, Florida Aquarium*

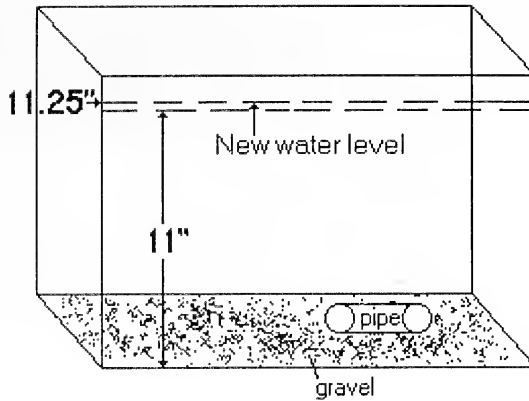
Last month I described methods to calculate the volume of empty regular geometric tanks. Most of these methods involve finding the volume of the plain figures (such as rectangles and triangular columns) and adding the volumes to get a total. But when was the last time you used a plain empty tank to hold anything?

Now the fun begins. Let's assume we start with the same "off the rack" 20-gallon tank we used last month.

As you will remember we actually calculated this tank to be 18.7 gallons if filled to the top. In this example we are going to add a piece of pipe as a hide for our fish, and a layer of gravel for the bottom. We start by lowering the water level to 11" rather than the 12" we calculated before. This gives us a new volume of 17.1 gallons. Mark the level on the tank! Now the easy way to solve this exercise is to not worry about the height of the water and simply add the pipe and gravel. While the water depth increases above 11" there is still 17.1 gallons of water in the set up. If this works for your system, make a new mark of the tank indicating 17.1 gallons and you're done. If it doesn't work and you need the water to stay at the 11" mark try this method. Go ahead and add the pipe and gravel to the tank and measure the increase in water level. Calculate the volume increase and subtract that from the earlier calculated volume of 17.1 gallons. To find the new volume once you have, lower the water level back to the 11" mark.



Set up before gravel and pipe added but with new water level.



Set up with gravel and pipe added.

The increase of .25" translates into 0.4 gallons, so subtracting 0.4 from 17.1 gals equals 16.7 gals, which will be the new volume once the water is back to the original height. Obviously, you can use this method to find volumes for almost anything you will be adding to a tank. It is also a dandy method to find the volume of any irregular object you might use as furniture. One note: remember to allow time for any air that might be in an object to release before making your measurements. As an example, a sponge filter occupies much more space when first put in a tank than it does once all the air is out.

We have been working with new systems so far and that is the best time to make sure you have accurate volumes. You can make measurements on each piece you add to a system and change water levels easily. Another method to find volume on a new set up is by direct measure of the amount of water it takes to fill the system.

To begin you will need a metered pump for a large tank or some container of known volume to fill your system with. If you use the container simply fill and pour until your system is full. Count the number of times you filled the container and multiple that number times the volume of the fill container, and you have the volume of your system. It takes time and effort, but you will generally only have to do it once (since you marked the tank, right?)

With a metered pump, simply fill through the pump and read the amount off the meter. I know this sounds so much easier than any method so far, but accurate meter pumps of any larger size are expensive...very expensive and won't be in the budget for most of us.

The final method for finding the volume of an established system (i.e. one with animals, pumps, filters, etc. already in place and running) will also work for very complex and irregular systems. In this case, we add a known amount of a dissolvable and measurable substance to a system and measure the concentration after it has dissolved. The idea is that the change in concentration will depend primarily on two things: 1) the amount of the substance added initially and, 2) the volume of water it is mixed into. If you have an accurate measure of one; you can calculate the other. For seawater tanks we use sea salt. Of course you must be able to measure the change in the salinity fairly accurately to get an accurate calculation of system volume.

A pound of commercial sea salt mix will make ~3.3 gals seawater at 34 parts per thousand (ppt) or 34000 parts per million (ppm). Salt mix brands differ, so make sure to check your particular brand. So, if you place 60 pounds of salt mix into a tank and the salinity changes from 0 ppm to 34000 ppm you have added it to 200 gals of water.

Here is the formula:

$$(V \times 0.0038 \text{ grams/gal} \times \Delta \text{ppm} \times 100) / \% \text{ active} = W$$
$$\text{Or } V = (W \times \% \text{active}) / (.0038 \times \Delta \text{ppm} \times 100)$$

Where: V = volume of water in gals
W = weight of salt added in grams
0.0038 is a conversion factor
 Δ ppm = the change in the concentration (salinity) of the water
%active is the active species you are testing for (usually listed on the container) for sea salt it is 95%

Since W = 60 lbs or 27216 grams, Δ ppm = 34000, and % active = 95

Then V = $(27216 \times 95) / (.0038 \times 34000 \text{ ppm} \times 100)$
or V = 200.1 gals.

In this example I have brought a 200 gal tank up to full 34 ppt salinity but the same calculation can be used on smaller changes. It takes a little work and thinking but it will give you a very good volume measurement for your tank (including all the filtration, piping, rockwork, etc in your system).

A quick reminder: The authors of the Water Column are always willing to answer any questions you might have. They can be about filtration systems, water chemistry, or aquatic life. If we don't know, we will find out for you! We also welcome feedback from readers about previously published columns. Questions and comments may be submitted to us by email at:

Dan: dconklin@flaquarium.org/
Kevin: kshelton@flaquarium.org/
Bruce: belkins@indyzo.com/

Or by mail at: Kevin Shelton, The Florida Aquarium, 701 Channelside Drive, Tampa, FL 33602.

Tibetan Antelope Numbers Rise

The population of Tibetan antelope, which were once rampantly poached, has grown to 70,000 from 50,000 in 1997 in the Tibet Autonomous Region, thanks to protection efforts, according to local wildlife protection authorities.

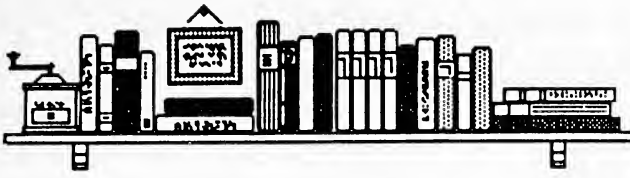
"Tibetan antelope began to enter a new period of rapidly restoring their population in 2001," said Zhoimayangzom, chief official of the wildlife protection section with the Tibet Regional Forestry Department.

According to a report on China's most endangered species released in 1997, there were only 50,000 Tibetan antelopes in Tibet, with another 25,000 in its neighboring western Qinghai Province and 15,000 in northwestern Xinjiang Uygur Autonomous Region.

The antelope, which tops the state protection list for its uniqueness to China, are found around the 600,000 sq. km of neighboring nature reserves consisting of the Qiangtang Nature Reserve in Tibet, the Hoh Xil Nature Reserve in Qinghai and the Mount Altun Nature Reserve in Xinjiang.

"Active protection is the major factor behind the increase of Tibetan antelope," said Zhoimayangzom. "About 4,000 antelope were illegally poached every year in the mid-1990s in Tibet alone and that figure has been reduced to 300 or 400 now."

The poachers are usually driven by high profits from selling Tibetan antelope fur to international traffickers for making shahtoosh shawls, which costs the lives of three to five Tibetan antelopes to make one. *Source: www.eastday.com Compiled by Shanghai Daily*



Book Review

Desert Lizards: Captive Husbandry and Propagation

By Randal L. Gray with contributions from Dan McCarron and Tim Tytte 2003

Krieger Publishing Company, P.O. Box 9542, Melbourne, FL 32902-9542

ISBN#1-57524-160-9

130 pgs. Cloth, 60 color photos and 14 tables \$27.50

*Review by Diane Barber, Curator of Ectotherms
Fort Worth Zoo, Fort Worth, TX*

This book highlights species of desert lizards that are frequently kept in captivity. Detailed husbandry and breeding notes are included for spiny-tailed lizards, horned lizards, chuckwallas, desert iguanas, collard lizards and geckos. This book is well-written, includes excellent photographs and provides the reader with a solid background of information for developing successful husbandry practices. Although most of the material in this book is geared towards beginning herpetoculturists, zoo professionals and seasoned herpetologists will be able to glean new husbandry and reproductive data to apply to existing captive programs.

The first four chapters feature general information necessary for sound husbandry practices. This section of the book describes desert ecosystems (including photographs of various microhabitats), habitat utilization, adaptation and physiological responses by lizards to their environment. This information will provide the reader with a general understanding of desert lizard ecology, and allow for the duplication of appropriate environments in captivity.

Additional sections on husbandry cover various indoor and outdoor captive enclosures, describing practical structures, substrates, creative props, ultraviolet lighting requirements, diet information, vitamin and mineral supplementation, as well as social grouping and common behavior of desert lizard species.

The section addressing captive propagation provides helpful photographs and information for sexing specimens as well as general information on hibernation, nesting sites and egg incubation techniques.

The second half of the book contains accounts of individual taxa and detailed information for a diverse group of desert lizards. Descriptions include specimen photographs, as well as notes on taxonomy, distribution and the natural history of species commonly found in captivity. In addition, this section presents information on the captive care of specific species, such as housing needs and diet information. Detailed information on reproduction, clutch size and egg incubation is also included. The chapters on collard lizards and desert geckos are particularly descriptive.

This book is a good resource for any zoo professional or herpetoculturist and will undoubtedly lead to a better understanding of a desert lizard's requirements for a long and healthy life in captivity.

Enrichment as a Behavioral Modification Tool in the Zoo Hospital Setting

*By Joanne S. Luyster, Keeper II
Louisville Zoological Garden
Louisville, KY*

Introduction

Many zoos incorporate behavioral enrichment into the daily husbandry routines of the animals at their institutions. In fact, the American Zoo & Aquarium Association (AZA) accreditation requirements now recommend that zoos develop written formal enrichment programs for “appropriate taxa.” (Shepherdson, 2002). However, this practice may not be implemented with a new arrival until the animal is released from quarantine and under the care of its primary keeper. Offering enrichment devices while an animal is still in quarantine provides the often-wary newcomer with a stimulating yet less stressful environment during this transitional period.

Similarly, utilizing behavioral enrichment techniques with hospitalized animals affords staff the opportunity to provide quality care while decreasing the animal’s negative associations with clinical confinement. On a lighter note, it could be viewed as putting the “hospitality” in “hospitalization.”

Applications

In general, zoo hospitals admit animals for prolonged, intensive, or difficult treatment procedures, or as a matter of routine quarantine practices. Offering enrichment to hospitalized animals benefits both keeper and animal. Providing an enriched environment allows the keeper to develop a rapport with the animal that may be frightened, apprehensive, or hostile in its new surroundings. This developing relationship can facilitate medical treatment and increase the likelihood that the animal will perform required tasks such as shifting.

An enriched environment furnishes the animal with a diversity of behavioral opportunities and mental stimuli thereby decreasing boredom, lethargy, or stereotypic behaviors. In turn, it is easier for keepers to assess the mental and physical capabilities of an engaged animal.

Challenges

Developing an enrichment program for a hospitalized animal presents certain challenges. First, an animal may need treatment and will tend to associate its enclosure and the personnel involved with aversive stimuli, such as intramuscular injections via dart.

Secondly, the stress of moving to a new enclosure may cause the animal to not eat or drink, making it difficult to utilize food enrichment items. This factor can be significant especially when food may be needed as an important avenue for delivering medications.

Thirdly, the animal may have had a stunted social development. The animal may be unfamiliar with exposure to an enriched environment, or it may not have had access to parents or conspecifics during the crucial periods of development where it learns play behavior, including exploring its environment. Such animals may be afraid of anything new or different added to their environment. This scenario requires patience and “baby steps” in introducing novel items, as well as careful monitoring and recording of reactions to each item to avoid prompting adverse behaviors. (Luyster, 2000).

Fourth, the animal may have physical conditions or other complicating factors that limit the types of enrichment that can be utilized.

Finally, an animal is usually under hospital care for short periods of time, and many behavioral modification programs prove successful only after protracted periods. Therefore, the enrichment

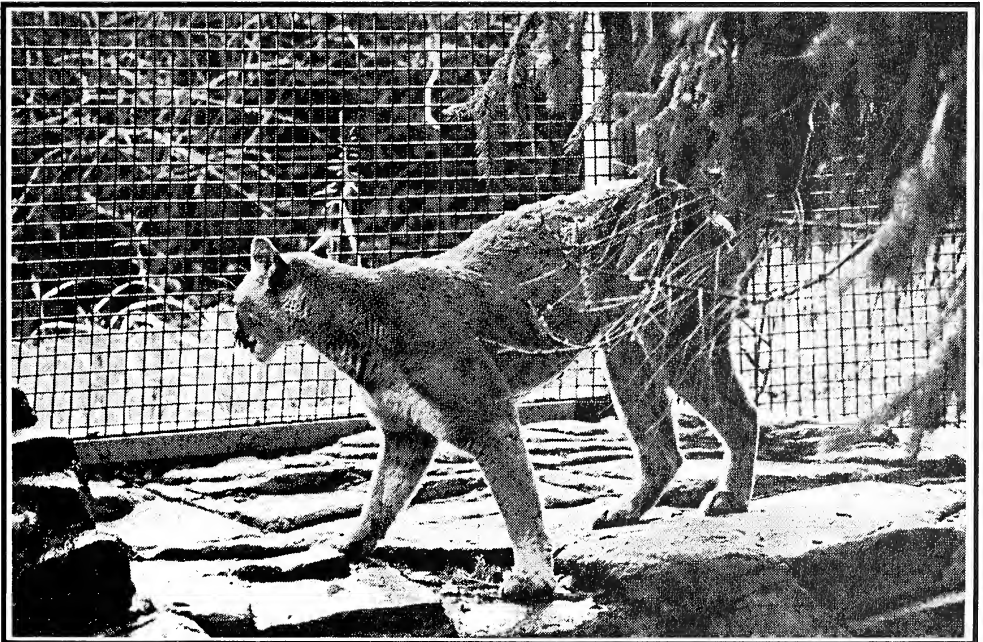
0.1 puma (*Felis concolor*) Sable benefited from the enrichment offered her during her difficult quarantine period at the Animal Health Center at the Louisville Zoo.

Note the shortened tail which was the result of a necessary amputation due to an initial injury by a male puma and then self-mutilation by the female.

The enrichment program offered Sable by her keepers encouraged behavior modification in shifting, crating and accepting unfamiliar food items.



Photos by Joanne S. Luyster



goal for each animal should be tailored to that animal's needs and be able to be accomplished within the allotted time frame.

“Sable:” A Detailed Case Study

“Sable,” a female puma (*Puma concolor*) arrived at the Louisville Zoological Garden Animal Health Center (AHC) from a feline rescue center for a 30-day quarantine period. The AHC received a male puma, “Emmett,” at the same time. Although they came from the same facility, these cats had not been introduced to each other. “Sable” had been confiscated as an illegal pet at ten months of age, and had been declawed on all four feet. She had been housed at the rescue center for two years, making her 2 years 10 months old. “Emmett” was found wandering a neighborhood by a child and was taken to the rescue center. “Emmett” had been at the center for a year and was currently 1 year 10 months old.

Quarantine

Upon arrival, “Sable” was placed in an enclosure adjacent to the male. She appeared extremely frightened, at first refusing to leave her crate, hissing, drooling, and later refusing to eat, refusing to shift, and ignoring any enrichment placed in her enclosure. She also presented a dietary challenge, as she had been fed road kill and did not readily accept a processed meat diet.

In contrast, “Emmett” shifted, ate, purred, played, and in general seemed to like interacting with people. He favorably accepted any and all enrichment offered.

When negative fecals were obtained, the cats were provided access to their outside yards. Once she had outside access, “Sable” appeared more relaxed and began responding somewhat to the keeper's request, e.g., to shift. After AHC staff began supplementing her processed diet with chunk horsemeat, “Sable” began eating better and would even eat in front of the keeper.

At the end of her first two weeks in quarantine, Sable cycled into estrus, rolling on her back and caterwauling. She also started soliciting the male in the outside yards. Unfortunately, the male was able to grab her tail through the fence at ground level, inflicting several bite wounds and lacerations and fracturing a tail vertebra about 4” (10cm) from the tail base.

β

Treatment Period

Animal staff wanted to save the tail if at all possible. The veterinary staff began a treatment program involving multiple anesthetics consisting of wound care and debridement, and bandage changes. However, “Sable” became uncooperative, aggressive, combative, and started mutilating her tail. As an adjunct to her treatment, I began an enrichment log to try to determine what, if any, enrichment items might distract her from chewing on her tail. The only enrichment she accepted at this time was feathers placed around her enclosure. At the same time, the veterinarian staff started her on diazepam and amitriptyline, as well as analgesics.

When “Sable” continued to mutilate her tail, veterinarians configured an Elizabethan collar for her. Eventually, they were forced to amputate her tail and apply a cast to the remaining 6” (15cm) stub. Meanwhile, administering twice a day medication became a major challenge, as she was not interested in eating. AHC staff tried a variety of food items [quail, chicks, mice, capelin, beef liver, braunschweiger, tuna, commercial cat food, venison, chicken puree, or a combination thereof]. Often “Sable” would eat a food only once or for a few days, and then refuse to eat it again, or she would only eat certain foods for certain people.

“Sable” endured frequent anesthetics for tail treatments [20 total]. She was groomed during these procedures as she could not groom herself due to the Elizabethan collar. I continued to provide enrichment items. Although sedated, she did move a Boomer Ball® around her outdoor enclosure and respond to spiced and scented bags. She continued to ignore catnip, hair, snake shed, and most boxes offered. Also, if she took her morning medication, she was given access to her outside yard for a few hours a day.

The veterinary staff tried reducing her sedation due to concerns over prolonged recovery after anesthesia and increased lethargy. However, on decreased sedation “Sable” became increasingly surly, licked and chewed on her tail (the bandage having been removed to promote healing at the recommendation of a local plastic surgeon consulted for this case). She refused to take her medication, and would not come inside, so sedation was reestablished.

I increased the number of enrichment items offered, including a new enrichment item of a thick blanket bed area, which “Sable” readily accepted and used. She was also put on a video monitor, so that any AHC staff member could distract her if they observed “Sable” licking her tail on “puma-cam.” “Sable” eventually established a routine of shifting to one stall while the yard and other stall were cleaned and propped with enrichment items and her morning medication, then when accessed she would go outside to urinate, defecate, paw the grass, then return, eat her medication, and lie on her bed and look outside. At night she would attend to the various enrichment items in her enclosure.

Once her tail was sufficiently healed, the Elizabethan collar was removed. At the same time the amount of enrichment offered was sharply increased. Her previous exposure to some of the items seemed to result in her accepting them better once she felt better. She also began grooming herself.

Finally, she was taken off all sedation and offered novel enrichment items such as “birds” – boxes with feathers stuck in them, burlap with donkey scent, “fishcicles” – capelin frozen in ice blocks, and fresh spearmint, all of which she readily accepted. While she continued to interact with some of the previously offered items such as scent bags, “Sable” never acknowledged reindeer hair, snake sheds, most boxes, or “bloodcicles.” Before “Sable” was moved to exhibit, a piece of her “used” burlap was given to her primary keepers to offer to the male to familiarize him with her scent. [In hindsight, the reverse may have also been beneficial.]

When she left the AHC for exhibit, “Sable:”

- came in when called
- ate in front of the keeper
- shifted on cue
- took food from a bait stick
- greatly reduced her hissing and threatening gestures
- crated.

Within several days of moving, “Sable” was shifting for her primary keeper staff and eating in front of them. Her introduction to the male was uneventful, and the pair is now together on exhibit.

Conclusion

While developing and implementing enrichment programs for quarantined or hospitalized animals can be challenging, the benefits derived from these programs attest to the worthiness of such endeavors.

References

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- Shepherdson, David. 2002. “Explanation of the AZA Accreditation Changes with Respect to Enrichment.” *Animal Keepers’ Forum*. Vol. 29, No. 9: 375-376.

Puma "Sable's" Enrichment Log

ENRICHMENT ITEM OFFERED	ACCEPTANCE
FISHCICLE	ATE IMMEDIATELY
BLOODCICLE	ATE 1, LET REST MELT
CATNIP	IGNORED
FRESH SPEARMINT	ROLLED ON IT
VANILLA SCENTED BAGS	TORE UP OR IGNORED
BAG/ BOX WITH SAGE	TORE UP OR IGNORED
BAG/ BOX WITH CLOVES	TORE UP OR IGNORED
BAG/ BOX WITH CINNAMON	TORE UP OR IGNORED
BAG/ BOX WITH GARLIC	IGNORED
BAG/ BOX WITH CHICKEN BOULLION	IGNORED
HAY WITH SCENTS, SPICES	IGNORED
LOG	PUSHED AROUND STALL
ORANGES	ROLLED ON ONE, BIT ONE
REINDEER HAIR	IGNORED
SNAKE SHED	IGNORED
BOOMER BALL	MOVED AROUND YARD
BOOMER BALL WITH SCENT	NO INCREASED USE
BLANKET	LAID ON IT
BURLAP WITH DONKEY SCENT	LAID ON IT
BURLAP	LAID ON IT
FEATHERS STUCK IN WIRE, LOG	PULLED OUT AND SQUISHED
"BIRDS"- BOXES W/ FEATHERS STUCK IN THEM	"KILLED"

West Texas AAZK Chapter

The West Texas Chapter of AAZK, located at the Abilene Zoological Gardens, Abilene, TX, is pleased to introduce its new Chapter logo. It was designed by Shelly Teague, who is the mother of one of the Zoo's teen volunteers and also a graphic artist. It was formally adopted by the Chapter on 4 March 2003.



New officers for the Chapter for 2003 are:

President.....Staphanie DeGesero
Vice President.....Max McGlasson
Treasurer.....Will Burch
Secretary.....Denise Ibarra

The Chapter has a number of events planned for this year and is also excited about participating in the printer/toner recycling project with National AAZK.

--Stephanie DeGesero, Pres.

Jackson AAZK Chapter

Newly elected officers for the Jackson AAZK Chapter are:

President.....Brian Kohler
Vice President.....Judy Dortch
Secretary.....Stephanie Watkins
Treasurer.....Percy King

The following years looks to be a promising one for our chapter. We have already donated \$50.00 to the general operating fund of AAZK, Inc. and \$100.00 to the International Elephant Foundation.

We have participated in three special events. The first was not only the largest but the scarest as

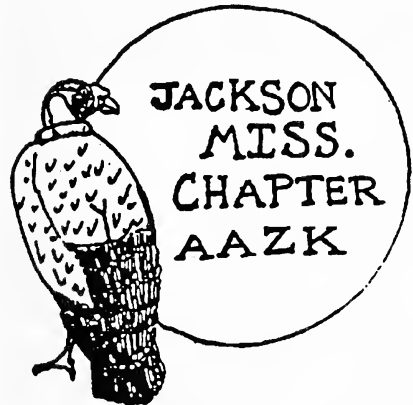
Chapter News Notes

"Dinosaurs" came to the Jackson Zoo for a 64-day event run from 7 March through 11 May. We did some fundraising by selling "tattoos" during this event.

The second event was our Annual Zoo Olympics which was held 8-9 March.

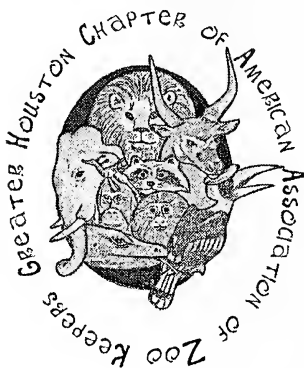
The third event is beginning to draw attention and hopefully will become a huge success. The first Bowling for Rhinos event since 1994 will soon take place here in Jackson, MS. Committees are being formed and pledges are being made!

--Brian Kohler, Pres.



What's your Chapter been up to lately? Drop a line to Chapter News Notes and fill us in on your activities and projects, new officers, your fundraisers, etc. You may send as a Word attachment to the editor at akfeditor@zk.kscoxmail.com

The Greater Houston Chapter 2002-Year In Review



(and maybe a little more....)

The Greater Houston Chapter had a very busy 2002. We would love to share with everyone what we've been up to, and what the year was like. We grew tremendously over the year, and participated in some wonderful fundraising and other projects ranging from enrichment to conservation. Here they are:

Nature Seekers (sea turtle conservation project): We donated \$23.75, and donated head lamps and rechargeable batteries which were used for field work.

International Iguana Foundation: Donated \$150.00

Turtle Alliance: Donated \$150.00

Texas Wildlife Rehabilitator: Donated \$150.00

Houston Zoo Primate and Carnivore Section Enrichment Projects: Donated \$250.00

Afghan Animal Relief Fund: Donated \$530.00

Houston Zoo, Inc. Docent Memorial Fund: Donated \$600.00

Center for Ecosystem Survival: Donated \$1800.00 for rainforest protection.

Miscellaneous Chapter Fundrasing: Raised over \$2,500 for Chapter funds. These included a booth at the AZAD conference, various garage sales, bake sales, recycling, dues, and the sales of chapter logo pins.

Bowling For Rhinos-2002: Raised \$3,482.00. We had a fantastic BFR this year. We held it in
202 Animal Keepers' Forum, Vol. 30, No. 5

cooperation with the Galveston Chapter, at the AMF Alpha Lanes in Webster, Tx. We couldn't have done it without the Galveston crew! The silent auction was quite successful, and there were also raffle and door prizes. The t-shirts were a hit. Not to mention, everyone had a great time bowling!

Well, that was a breakdown of some of our projects this last year. But we didn't stop with new projects. We now have a new logo, which we're very proud of. It was designed by Megan Pastchke.

To finish off the year, we elected officers for 2003. Here they are:

President: Carolyn Mathews-Borax

Vice President: Kelly Russo

Secretary: Kim Shotola

Treasurer: Melanie Powell

Chapter Liason: Julie Vest

We thank them in advance for their service during 2003.

We've already ushered in 2003 with a bang. There is a terrific yearly conservation project that happens down here on the Gulf Coast called the "Crab Trap Cleanup". It is sponsored by Texas Parks and Wildlife, and took place in February. We again teamed up with our partner in crime, the Galveston Chapter for this.

Every year, Parks and Wildlife wardens pick up over 2,500 abandoned crab traps. This year with the volunteer help from AAZK and others, over 3,474 traps were picked up along the Texas Gulf Coast. These traps continue to "fish" and trap aquatic life long after they're abandoned, so this is a great conservation project!

We were happy to start the year off right, and would like to show a few photos from the cleanup (see following page). We've got lots of projects and goals for the rest of the year, so we'll keep everyone posted!

---Julie Vest, Chapter Liaison

Crab Trap Clean-Up Photo Album



The Instructions

The Work



The Results

The AAZK Crew



Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



Oil Fires Threaten Migrating Birds

Flocks of migrating birds from Russia are being killed by smoke released from oil wells burning in Iraq. The birds have been wintering in the Middle East and are heading back to Russia for the spring and summer. The smoke has caused several thousand birds to become disoriented, confused, and many have died from smoke inhalation and accidents related to disrupted flight patterns.

So far, only a handful of oil wells have been set on fire in Iraq, compared with as many as 700 wells in Kuwait in 1991. During the 1991 Gulf War, ornithologists in Russia found many migrating birds with oily plumage. Many birds also died even before they were able to leave their wintering grounds.

Marshlands of southern Iraq, including the Basra region and the valley of the Tigris and Euphrates rivers, have long been known as popular wintering places for water and near-water birds. A spokesperson for the Russian Natural Resources ministry stated recently that thousands more birds might veer off their migration routes because of the smoke and fire. Most of them will not be able to survive the rest of the year in the desert. It is estimated that one billion birds migrate to and from Iraq annually. Species include ducks, geese, loons, seagulls, snipes, and gray cranes, which inhabit the European part of Russia each year. Ducks and snipes are the first to begin the migration, followed by seagulls, storks and cranes. Millions of other birds bypass the Middle East on their way from Russia to Africa for the winter.

One of the main problems with the oil fires is that they create oil spills that entice the birds to land, just as they would on a body of water. When the feathers become covered with oil the birds cannot fly and usually die of hypothermia. Also, if oil gets into their eyes they are usually rendered blind. The scale of the damage to the feathered population will not be clear until the summer, when ornithologists count birds congregating in their major nesting places. *Source: The Moscow Times online, 28 March 2003*

Land Added to National Wildlife Refuges and New Habitat Conserved by Wetlands Act

The Migratory Bird Conservation Commission approved the acquisition of more than 3,000 acres of important migratory bird habitat for the National Wildlife Refuge System at its March meeting in Washington, D.C. The Cabinet-level commission, chaired by Interior Secretary Gale Norton, approved Migratory Bird Conservation funds of nearly \$3.7 million to acquire the land. All acquisitions had been previously approved by the affected states.

“Sportsmen and women have contributed a great deal in the development of the National Wildlife Refuge System,” said Interior Secretary Gale Norton. “Money raised by the sale of Federal Duck Stamps pay for these land acquisitions. Since the first Duck Stamp sale in 1934, about \$675 million has been raised to purchase more than five million acres of wetlands for the refuge system.”

New National Wildlife Refuge System acquisitions approved by the Conservation Commission are: Colorado: Acquisition of 638 acres to protect wetlands for migratory waterfowl within the boundaries of Alamosa NWR in Alamosa County.

Maryland: Acquisition of 89 acres to preserve marsh, shoreline, wooded swamp and forested upland for migratory waterfowl, shorebirds, raptors, woodcock and neotropical migrants within the boundaries of Blackwater NWR in Dorchester County.

New Jersey: Acquisition of 91.3 acres to preserve *Spartina* salt marsh and low wooded wetlands for waterfowl, shorebirds, raptors, woodcock and neotropical migrants within the boundaries of Cape May NWR in Cape May County.

Wisconsin: Acquisition of 40 acres to preserve, protect and restore migratory waterfowl habitat at Horicon NWR in Dodge County.

Maine: Acquisition of 1,084 acres to provide habitat for black ducks and woodcock within the boundary of Moosehorn NWR in Washington County.

Tennessee: Acquisition of 609 acres to protect habitat for wintering waterfowl within the boundary of Chickasaw NWR in Lauderdale County.

Washington: Acquisition of 60 acres to provide production and migration habitat for waterfowl within the boundary of Conboy Lake NWR in Klickitat County.

Texas: Acquisition of 549 acres to protect wetlands for waterfowl within the boundary of Trinity River NWR in Liberty County.

The Migratory Bird Conservation Act of 1929 established the Migratory Bird Conservation Commission to approve land to be purchased for the National Wildlife Refuge System with monies from the Migratory Bird Conservation Fund. The fund is supported by revenue collected from Federal Duck Stamp sales, import duties collected on arms and ammunition, right-of-way payments to the refuge system, and receipts from national wildlife refuge entry fees. The Commission also approved the protection or restoration of more than 137,000 acres of wetlands. A total of \$14.5 million was authorized under the North American Wetlands Conservation Act, which will be matched by nearly \$43.8 million in partner funds to restore habitat.

The Migratory Bird Conservation Commission accepted recommendations from the North American Wetlands Conservation Council and approved 24 grants that will foster wetland restoration protection and enhancement projects in Mexico and the United States under the auspices of the North American Wetlands Conservation Act. Grant funds of more than \$1.6 million will be combined with nearly \$2 million of partner funds in Mexico and more than \$12.9 million in grant funds will be combined with \$41.8 million in the United States. Grants will fund projects in the states of North Dakota, Idaho, Wisconsin, Arkansas, Louisiana, New Jersey, Iowa, Nebraska, California, North Carolina, Virginia, Colorado, and Washington and throughout Mexico. The Commission meets three times a year to approve funding proposals. *Source: U.S. Fish & Wildlife Service Press Release 3 April 2003.*

Thai Government Buys Elephants for Forest Patrol

Two hundred out of work domesticated elephants are being purchased by the Thai government and will be reemployed patrolling 37 national parks and wildlife sanctuaries. The idea was proposed by Thai Queen Sirikit who, along with her husband King Aduladej have no formal political authority but are viewed as the moral guardians of Thailand. Always fond of animals, both have become outspoken about animal welfare since adopting a street dog in 1998.

“Elephants are well suited to the job. Using elephants is better than using four-wheel-drive vehicles in terms of pollution reduction and energy savings,” said World Wildlife Fund’s Thailand secretary general Surapon Duangkhae. Previously, Duangkhae was critical of a plan to release the elephants into the Kanchanaburi forest. Of 70 former working elephants previously released into the wild, just 40 survived. Some could not find enough food and turned to raiding plantations, some tried to cross fortified borders and stepped on landmines, and some were hit by vehicles. All of the elephants in question lost their former jobs when Thailand curtailed logging to save the native rainforest a decade ago.

The National Elephant Institute counted 3,500 working elephants in 1992, of whom 990 were employed in tourism and the rest mostly in logging. By May 2002 only 2,343 elephants had jobs anywhere. As many as 500 elephants were roaming the nation with their manhouts (handlers), doing odd jobs and begging for food, with between 40 and 150 elephants illegally living in Bangkok. The proposal regarding park patrols would give employment and a source of income to the elephants and their manhouts. *Source: Animal People News: News for People Who Care About Animals, March 2003*

United Arab Emirates Hosts Conference on Arabian Leopard

The government of the UAE hosted a conference in February 2003 dealing with saving the remaining populations of the Arabian leopard (also called Arabian lynx). This species was thought to be extinct since the 1960s until a goatherder shot one in 1992. Experts now think 150 to 250 Arabian leopards exist in the UAE, Yemen, Oman, Egypt, and Saudi Arabia.

About three times larger than a domestic housecat, the Arabian leopard hunts Nubian ibex, the Arabian gazelle, and wild or feral goats. The conference was convened two weeks after a reporter disclosed that a UAE citizen reportedly stoned to death a leopard he claimed was about to attack him. That same individual later admitted that he shot a leopard two years earlier, again in purported

self-defense. The UAE leopard conference reflected growing concern about the survival of rare leopards and other wild cats throughout Islamic Asia. The leopard populations of India, Africa, and Southeast Asia, including China, are considered stressed but stable wherever prey is abundant and active efforts are made to suppress poaching. Relatively little has been done to protect leopards in the Islamic parts of Asia, however, where they have been aggressively hunted and where arid habitat keeps prey scarce. *Source: Animal People News: News for People Who Care About Animals, March 2003*

USFWS/National Marine Fisheries Service Announce ESA Listing Evaluation Policy

The Interior Department's Fish and Wildlife Service (USFWS) and the Commerce Department's National Marine Fisheries Service recently announced a policy that should help guide states, local, tribal and foreign governments, businesses, organizations, and individuals in their efforts to restore populations of declining species before they require the protection of the Endangered Species Act.

The Policy for Evaluation of Conservation Efforts (PECE) will ensure consistent and adequate evaluation of current and future conservation efforts when considering species for addition to the federal list of threatened and endangered species. The policy identifies certain criteria that the two agencies will use in determining whether a future or recently implemented conservation effort, such as habitat restoration or protection, has contributed to the long-term survival of a species making listing that species unnecessary, or has contributed to improving the status of a species to the extent that it should be listed as threatened rather than endangered.

"We hope this policy will encourage active conservation efforts before a species and its habitat are critically imperiled. Such efforts will increase the likelihood that simple, cost-effective conservation actions are undertaken to reverse population declines and prevent the need to list some species," said Interior Secretary Gale Norton. "By working closely with local governments, individuals and other concerned groups, we can encourage faster, more comprehensive protection for species at risk," Commerce Secretary Don Evans said. "These conservation efforts will improve our ability to protect marine species before there is a need to list them under the Endangered Species Act."

In order for a conservation effort to affect the listing decision, the PECE policy requires the agencies to find that the effort is certain to be implemented and sufficiently effective. Such criteria include identification of explicit conservation objectives and dates for achieving them, steps necessary to implement the efforts, and standards for measuring progress.

Early conservation efforts have been a valuable tool in eliminating threats to species, preventing the need to add them to the list of threatened and endangered species. Such efforts prompted the USFWS to withdraw proposals to list the pecos pupfish in New Mexico and Texas, the Virgin River spinedace in Utah and the southern population of the copperbelly water snake in Kentucky, Illinois and Indiana. States have been working in partnership with the Services and other organizations and individuals to conserve candidate species for years. "This policy recognizes that they can and do make a real contribution to the long-term survival and recovery of declining species," said USFWS Director Steve Williams. *Source: USFWS Press Release 28 March 2003.*

In a related story, the Environment News Service reports that conservationists are highly skeptical of a new Bush administration policy for evaluating how current and future conservation efforts affect decisions to grant plants and animals ESA protection. They fear that the "Policy for Evaluation of Conservation Efforts" is yet another way that the administration can avoid ESA listings "under the guise" of delegating conservation to state agencies. The Bush administration, particularly Interior Secretary Norton has "come under sharp criticism" for failing to implement the ESA. "A law that she has opposed at every turn through her career" says Defenders of Wildlife. *Source: GREENlines Issue #1838 4-8-03*

USFWS Offers New Way to Declare Wildlife Imports and Exports

A new Internet-based system for declaring wildlife imports and exports to the USFWS is now available for use by anyone engaged in wildlife trade. Called "eDecs," the system gives individuals, customs brokers, and companies required to file declarations with the Service a quick and efficient alternative to filling out paper forms.

"The eDecs System promises to speed clearance of wildlife imports and exports. Through this system, users can communicate with Service wildlife inspectors by e-mail and problems with declarations can be identified and resolved quickly, avoiding potentially costly delays in clearing shipments," said Service Director, Steve Williams.

Most commercial wildlife imports and exports must be declared to the Service; declarations are also required for some personally owned animals and wildlife products that individuals bring into or out of the country. In the past, declaring a wildlife import or export involved filling out a paper form and presenting it to a Service wildlife inspection office or to the U.S. Customs Service. "The Service monitors wildlife trade to ensure compliance with laws and treaties that protect species, but we are also committed to making it easier for the public to meet wildlife import/export requirements," said Williams. The new electronic declarations system, which supports the Administration's goal of expanding "e-government" services, allows importers and exporters to declare shipments to the Service via a secured Internet web site.

Last year, the Service conducted a pilot test of the eDecs system at eight ports of entry. Feedback from participating businesses, customs brokers, and Service inspectors helped the agency further refine the system before introducing it nationwide. All 32 ports of entry staffed by Service wildlife inspectors now accept and process declarations filed using eDecs.

Importers and exporters still have the option of filing traditional paper declarations with the Service. eDecs, however, offers a number of advantages, particularly for commercial importers and exporters who declare shipments on a regular basis. The system stores data for future use, eliminating the need to retype standard information each time a declaration is filed. Users can track the status of their submissions and communicate directly with Service wildlife inspectors through the system's e-mail notification feature. Improvements planned for eDecs include the addition later this year of an on-line billing and payment feature for commercial importers and exporters and others who pay fees for inspection services. The Service is also working with other Federal agencies that regulate trade to plan and develop a "one stop" International Trade Data System that may one day take almost all the paperwork out of obtaining clearances on imports and exports. "eDecs is only a first step," Adams said. "We plan to be part of government-wide improvements that can benefit the wildlife/import export community."

There is no charge for using eDecs, and no special software is required. Users access the system via the Service Office of Law Enforcement eDecs home page (<https://edecs.fws.gov>). Anyone with Internet connectivity, an e-mail address, and Microsoft's Internet Explorer browser (version 5.0 or higher), which can be downloaded for free, can file a declaration using eDecs. Users should also have an ink jet or laser printer since they will need to print a hardcopy of their cleared declaration for U.S. Customs and their files. *Source: USFWS Press Release 11 March 2003.*

Ebola Wiping Out Gorillas

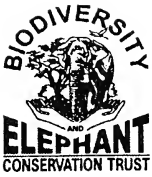
An outbreak of the deadly Ebola virus, which killed a hundred humans in the Congo Republic, has "wiped out nearly two-thirds of the gorillas" in Lossi park reserve reports the Environmental News Network/Reuters. Some 600 to 800 gorillas have disappeared from the sanctuary, where only 450 remain, and scientists worry that if the outbreak spreads to nearby Odzala park another 20,000 gorillas could be threatened. "That's very serious, catastrophic" said a leading primatologist. *Source: GREENlines Issue #1825, 3-20-03.*

More Condors Fly Free/Captive Condors Get West Nile Vaccine

Three more California condors have been released from their acclimation pens and are now flying free over the wildlands of Arizona reports the *Arizona Republic*. There are now 36 wild condors in Arizona and more in California but the coordinator of the condor program "estimates it could take another 20 years to the condors to the level where they could be removed from the federal endangered-species list."

In a related story, two California condor captive breeding programs have "snapped up" an experimental DNA-based vaccine to protect one of America's most endangered birds reports the *Denver Post*. The virus has "spread much faster than anybody has predicted" and is expected on the West Coast this summer. Before being given to the condors, it was successfully tested on Andean condors and is "proving to be more effective than the other West Nile vaccine now on the market." Biologists are now considering whether to give it to other endangered birds such as the whooping crane and spotted owl.

Also, the reward being offered for information in the shooting of one of the last original wild California condors, Adult Condor 8, found dead Feb. 13 on a Kern County Ranch, has been raised to \$30,000 for information leading to the arrest and conviction of the shooter. Killing a member of an endangered species can bring a year in jail and a \$100,000 fine. *Source: GREENlines Issue # 1819 3/12/03*



Symposium on Human-Elephant Relationships and Conflicts



Invitation for Abstracts

The International Elephant Foundation (IEF), in association with the Biodiversity and Elephant Conservation Trust of Sri Lanka would like to invite you to participate in the Eighth Annual Elephant Research and Conservation Symposium scheduled for 19-21 September, 2003 at the Hotel Lanka Oberoi in Colombo, Sri Lanka.

The theme of this year's meeting will be "**Human-Elephant Relationships and Conflicts**". Iain Douglas-Hamilton will deliver the Keynote Address.

Submissions of abstracts for oral presentations and posters relating to the meeting theme are invited. Abstracts will be peer reviewed and need to be submitted by **30 June 2003**, by email or post to Jayantha Jayewardene at romaliji@eureka.lk or 615/32 Rajagiriya Gardens, Nawala Road, Rajagiriya, Sri Lanka, and to Deborah Olson, IEF Program Officer, dolson@indyzoo.com or IEF, P.O. Box 366, Azle, TX 76098-0366, USA.

Participants who do not present papers/posters are also welcome.

Registration fees will be US\$100 for western participants and US\$ 35 for range state (African or Asian) participants.

A field trip to the Pinnawela Elephant Orphanage will be arranged right after the Symposium. Trips to some of the National Parks and to elephant research sites in Sri Lanka will also be arranged.

The symposium website is www.slwcs.org/sherc

For more information about the meeting please contact:

Jayantha Jayewardene: romaliji@eureka.lk or 615/32 Rajagiriya Gardens, Nawala Road, Rajagiriya, Sri Lanka. Phone: +94 1 867902

OR

Deborah Olson, IEF Program Officer: dolson@indyzoo.com

The International Elephant Foundation: www.elephantconservation.org

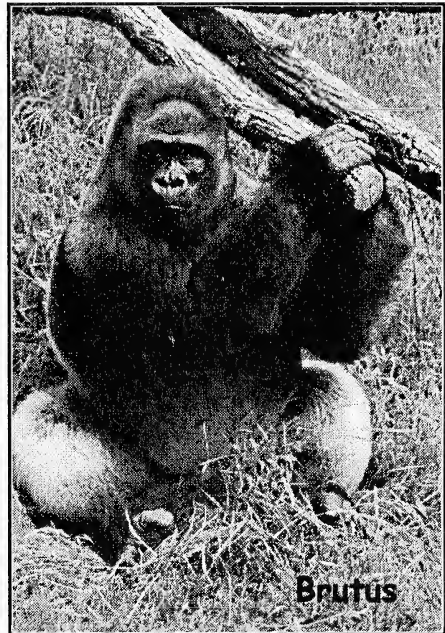
An Update on Little Rock Zoo's Multi-Male Gorilla Group (*Gorilla gorilla gorilla*): Ten Years and Counting

*By Daphne Brock, Great Ape Keeper
Little Rock Zoo, Little Rock, AR*

When Brutus, Trudy, JJ, and Fossey first joined together in 1993 to form our multi-male gorilla group (*Gorilla gorilla gorilla*), no one had any idea that they would still be together ten years later. As the housing problem for male gorillas continues, it is our hope that our unique group can teach us valuable strategies for managing this type of group in the future. While we attribute the continued success of our group to many factors, not the least of which is the subtle yet powerful influence of Trudy (Rademacher, 2000), we feel that our flexible management strategy has also played a key role the last couple of years.

JJ and Fossey, known as “the boys”, arrived in Little Rock as gangly 7 year olds from Columbus Zoo in November of 1993. At that time 15-year-old Brutus and 36-year-old Trudy had been housed as a pair for 18 months. Within six months of the initial introductions, all four were spending days and nights together. Alliances formed quickly, with Trudy rushing to the defense of the boys in altercations with Brutus. As the boys matured over the next several years sexual behavior was observed between Trudy and both JJ and Fossey. No sexual behavior was ever seen between Brutus and Trudy, either before or after the introduction of the boys. This sexual behavior between Trudy and the boys stopped when they were approximately ten years old (with the later exception of several copulations with Fossey in January and March of 2001). As they grew in size, Trudy no longer seemed interested in them sexually, although she did maintain a good relationship with Fossey when they were alone, enabling them to eat together even to this day.

In the fall of 1998 Trudy was becoming reluctant to go out on exhibit with the three males. She had become the object of both JJ's and Fossey's displays more and more frequently when outside. By this time 12-year-old JJ had begun challenging Brutus and altercations were not uncommon. While Fossey and JJ remained friends and played together, Fossey backed up Brutus when he participated at all. By the winter of 1998 Trudy was spending all of her days inside while the three males were out on exhibit. Trudy's isolation during the day continued for the next year and a half. On the few occasions we were able to coax her outside she was subjected to an onslaught of chasing and slapping by the boys. All four gorillas still spent the night together after the evening feeding. While we considered moving Trudy at this time we really did not have the facilities to easily integrate her into our other group of 1.1 gorillas. In addition, we still felt that she was exerting an influence on the group and so decided to wait.



Brutus

By May of 2000 JJ's challenges had become more serious and persistent, resulting in occasional physical fights. Both Brutus and JJ sustained minor injuries as a result of these skirmishes. At this time we made the decision to give all four gorillas access to the holding cages and the outside

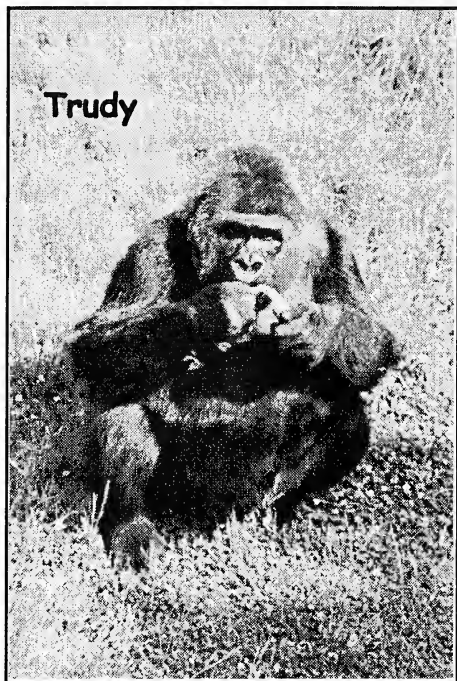
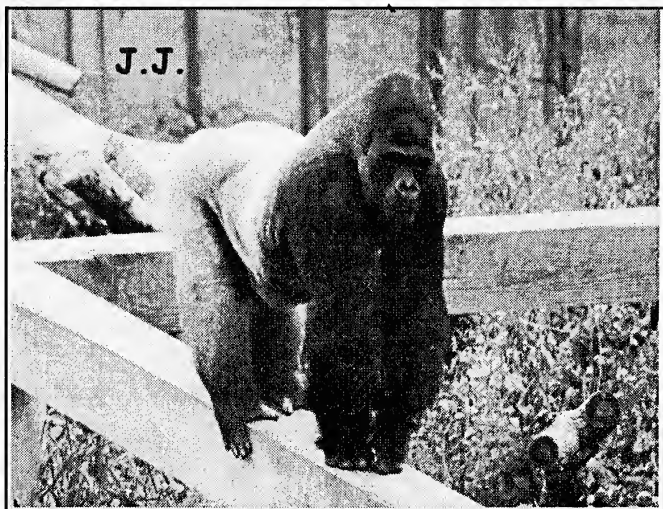


exhibit during the day. This allowed the males more room and meant that Trudy was no longer isolated during the day. We had not done this initially because of our gorillas' tendency to remain inside off exhibit when given the choice. Trudy quickly formed an alliance with Brutus, not only helping to chase JJ out when he began displaying in the day cage, but frequently initiating those chases. Fossey generally chose to stay out of these spats, but when he did intervene it was always on the side of Brutus and Trudy. This in no way appeared to affect Fossey's relationship with JJ, which remained remarkably strong.

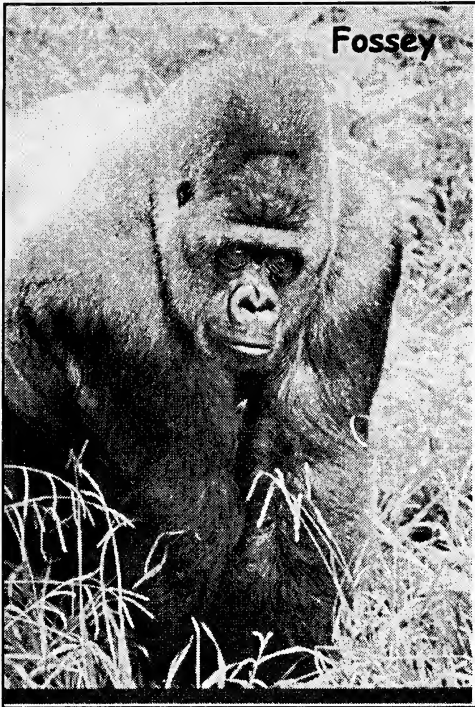
In the fall of 2001 we began a routine of feeding Fossey and Trudy outside together at the end of the day while Brutus and JJ ate inside. We felt this would at least give her some time outside, as even though she had access to the group she was still choosing to spend her days inside. Within a couple of weeks she became comfortable with this feeding

routine and it remains a favorite part of the day for Fossey and Trudy, as well as for the keepers.

During this period we also noticed that Brutus had begun staying inside more and more, until eventually he rarely went outside. This was presumably in response to JJ's relentless challenges. While Brutus could have some modicum of peace inside, he could not go out on exhibit without dealing with JJ. It was clear to us that the quality of life for all four gorillas was suffering at this point. The stress levels and the restrictions on freedom of movement were taking their toll. JJ's stress manifested itself in muscle quivers and persistent teeth grinding, while Brutus almost seemed to sink into a malaise. No one in the group was ever at ease. It was then that we decided to try keeping JJ inside on occasional mornings to let Brutus, Fossey, and Trudy have the yard. This seemed to work briefly, until JJ began expressing extreme agitation, which we took as a reaction to being alone. This prompted us to start keeping Fossey in with



him. Fossey has always enjoyed lounging inside, so we felt this would not be a hardship on him. This combination seemed to work so well that we lengthened the amount of time Brutus and Trudy had the yard. Currently JJ and Fossey stay inside every other day. On the alternate days all four gorillas are together with access to the yard and the day cage, and they still spend every night together.



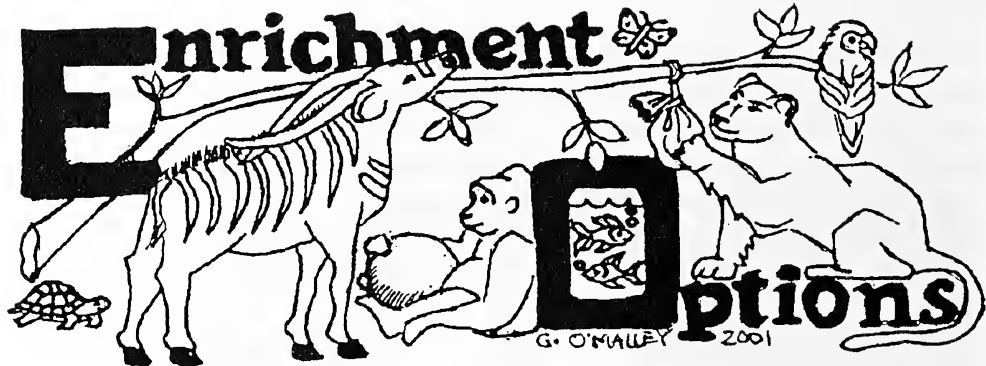
We have noticed a palpable change in this group since we have been managing them in this manner. JJ's stress level has most certainly gone down, even on the days when everyone is together. Presumably the time off from his role as challenger has enabled him to relax, taking some of the pressure off of him. He and Fossey now spend much more time outside than they ever did before, and still have long, intense play sessions when they're alone inside. Brutus and Trudy's quality of life has improved immeasurably since being able to spend every other day not only outside, but also free from JJ's challenges. Trudy has become much more active and appears more vibrant and healthy than she has in years. We still believe she exerts a subtle yet important influence on the group. We feel that Fossey's decision to back Brutus against JJ may be related to his close relationship to

Trudy. Because of Trudy and Brutus's alliance, by backing Brutus he is in effect backing Trudy. Fossey, who takes all situations in stride, has endured the group's trials and tribulations with characteristic grace, always remaining a calming influence.

Brutus, now aged 25, Trudy, at 46, and JJ and Fossey, 16 and 16 1/2 respectively, are a unique and challenging group to manage, to say the least. We have been extremely fortunate to have management who understood the ever-changing nature of such a group and allowed us to let the gorillas dictate the next move. Sometimes those dictates meant there were no gorillas outside for the public to view. As it has turned out, what is best for the gorillas has been best for visitors, as well. Now on any given day they will either see two very impressive silverbacks or a pair of gorillas, as opposed to an empty yard. We have learned a lot along the way, the most important being to always remain flexible. While individual personalities certainly play a role in this group's success, it is our hope something may be gleaned from our experiences that might prove helpful to the management of multi-male groups in the future.

Reference:

Rademacher, Ann (2000). The Role of an Older Female Gorilla in a Multi-Male Group or There's Something About Trudy. Presented at the Bachelor Gorilla Workshop at Disney's Animal Kingdom.



By Jan Roletto, Eureka, CA
and Dawn Neptune, Utah's Hogle Zoo

Firehose Animals

Submitted by: Micala and Danelle Teetzen, volunteers at Sedgwick County Zoo, Wichita, KS

Credit for this idea goes to Keoni Pappas, author of "New Uses for Old Firehoses" (*Shape of Enrichment*, August 2002). This article had several good ideas for using firehose to make enrichment, but we were disappointed to find no specific directions on making the items described. So we set to work on creating a "firehose animal," relying primarily on a photo from the article. Through trial and error, this is what we've come up with.

How to Make a Firehose Animal

You will need: 2 rolls of firehose (most fire stations will donate their old hoses)
Sharp utility knife or serrated knife

1. Use a knife to cut the ends off of the firehoses.
2. Fold the hose back and forth 10 times at approximately 90cm (3 ft.) lengths. See Figure 1.

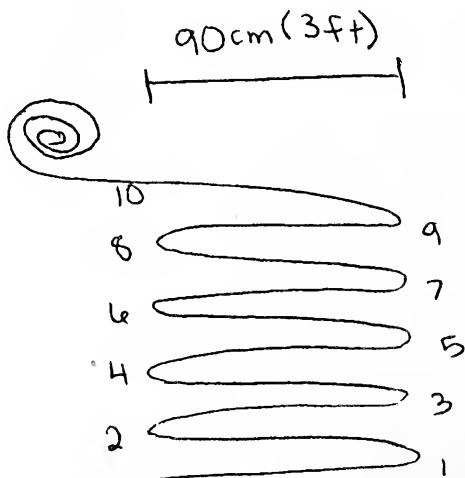


Figure 1.

3. Split into two stacks of five (5) layers each and place stacks side by side. See Photo 1.
4. Use the remainder of the hose to wrap the body fairly loosely. (This will make weaving easier later.) See Photo 1. Tuck the end into one of the folds.

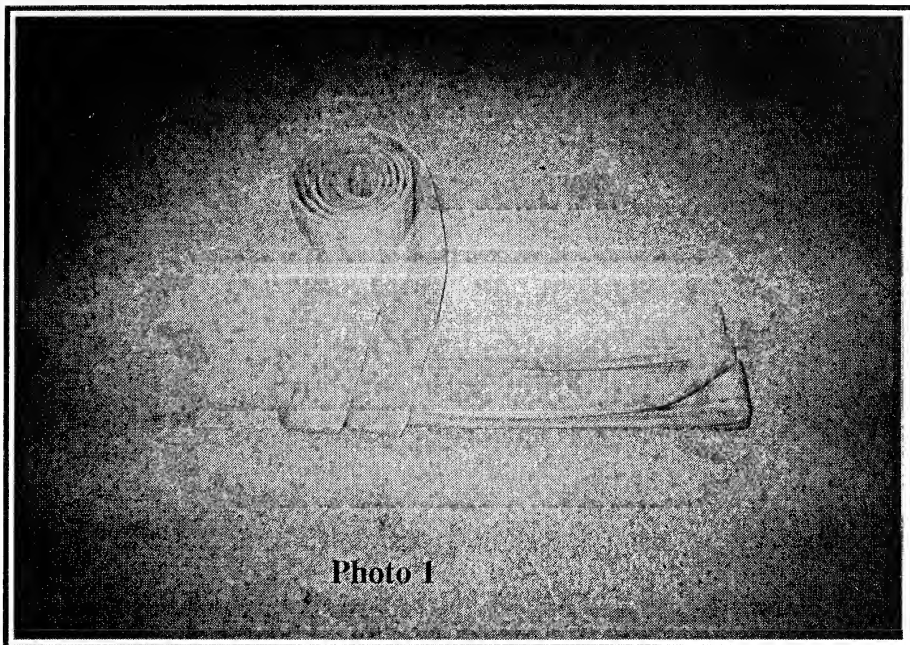


Photo 1

Photo by Micala Teetzen

5. Fold the second firehose back and forth as shown in Figure 2 to make the legs. The folds should be about 120 cm (4ft) long.

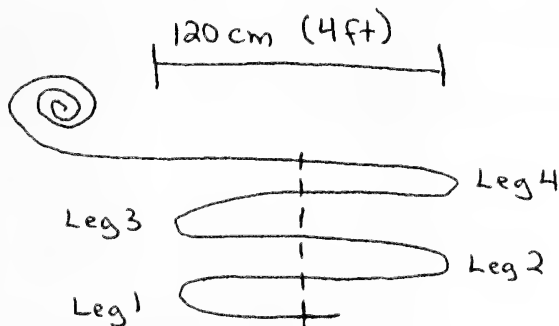


Figure 2.

6. Pull the legs through 4-5 of the middle sections of the body. See Figure 3.
7. Use the rest of the roll to weave around the body. Make sure that the hose isn't twisted before starting each weave. Weave over-under-over-under around the sides of the body, alternating the pattern of neighboring strands to create a basket-like weave. You should have enough hose to weave twice around the sides of the body and once or twice around the top and bottom sides. Run one weave on the bottom side between the pairs of legs to separate them. See Photo 2.

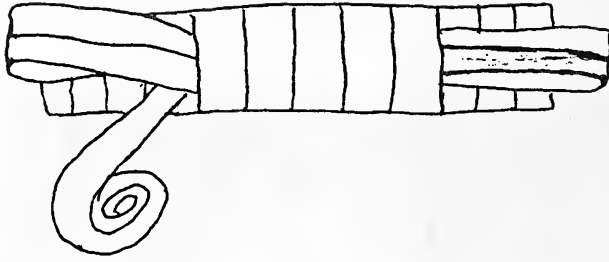


Figure 3.



Photo 2

Photo by Micala Teetzen

8. If you have hose left over, you have several options. You can cut it off using a knife. You can leave the hose as is and use it to hang the animal. The third option is to make head. To do this, create a big knot and loop through it a few times to securely attach it to the body. See Photo 3.

The firehose animals work well with any big cats. They would also be suitable for bears, wolves, hunting dogs, etc. They are fairly naturalistic in appearance and allow the visitors to see the strength of the animals as well as natural behaviors such as stalking and dragging the “carcass” without all the blood of a real carcass feeding. See Photo 4. We have also adapted this concept for smaller animals by making a half-sized version using only one firehose.

Other toys we have produced include a weaved cube and a hoop. The cube can be solid or hollow inside. Large hoops are ideal for elephants or big cats. For these, it is easiest to start with a wide firehose to make the base for the hoop. (If you don't have one, you can double the width of a thinner hose by making two hoops and stacking them on top of each other for a base.) Use a second hose to wrap around the entire hoop. See Figure 4. Then weave 2-3 times around the outside of the hoop. See Photo 5.

Photo 3

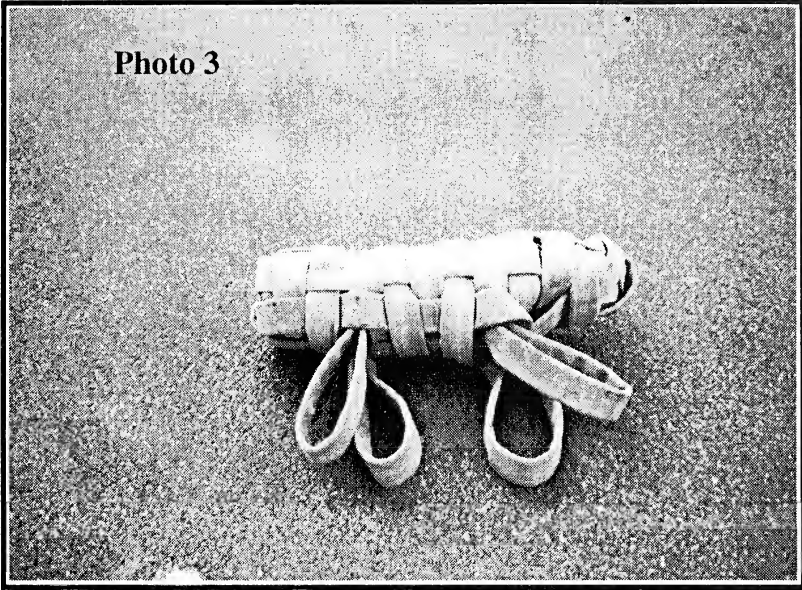


Photo by Danelle Teetzen

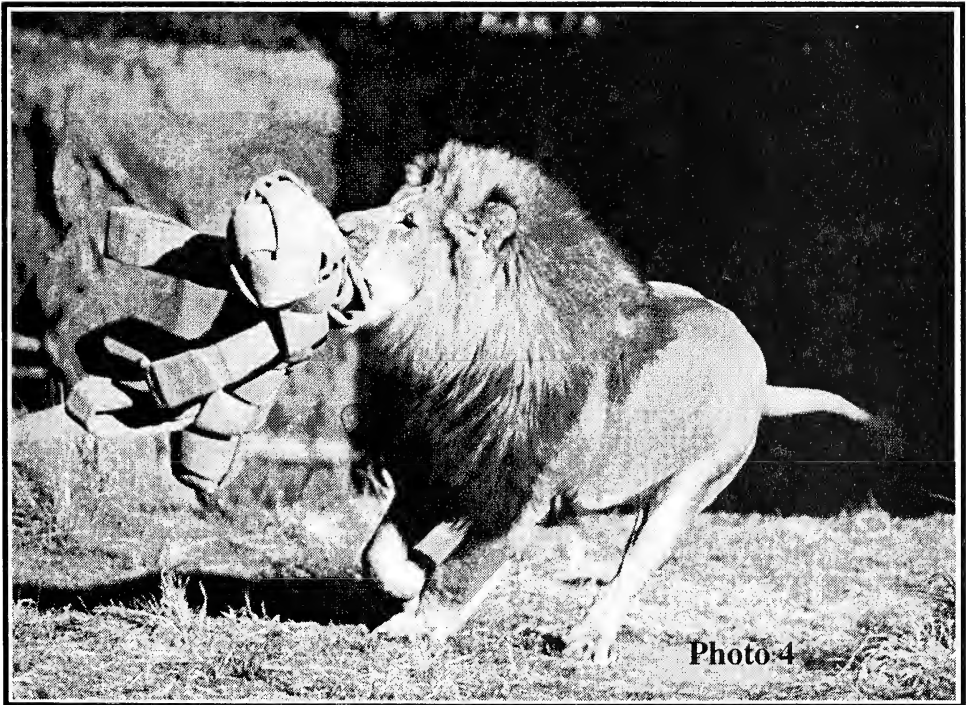


Photo 4

Photo by George McCandless

A word of warning: Be careful where you store these creations, since mice seem to enjoy nesting inside of them. If they are stored near rat poison, some may find its way inside via the mice, posing a hidden danger to your animals.

Any of the types of firehose toys can be hung from a garage door spring (enclosed in PVC pipe as a safety precaution) for more of a challenge. Other ideas include tucking produce or treats into the finished products, or it can be sprinkled with spices or perfumes. Firehose is very durable and therefore reusable. When your animals unravel one toy, you can make it into a new one.

The possibilities are endless!

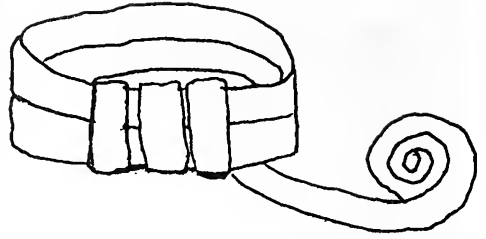


Figure 4.



Photo by George McCandless

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit materials for the Enrichment Options Column. This might include recipes, toys, puzzle feeders, olfactory enrichment ideas, etc. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054. Eds.)

*Institutions wishing to advertise employment opportunities are asked to send pertinent data by the **10th of each month** to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive their AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our Fax is (785) 273-1980; e-mail: akfeditor@zk.kscoxmail.com< Listing may be sent as MS Word attachment. We are no longer located at the Topeka Zoo, so please note new address to avoid delays in processing.*

Zoo Keeper/Grasslands

Send resumé to: Director of Human Resources, Mike Burnett, 6500 Magazine St., New Orleans, LA 70118 or email to: mburnett@auduboninstitute.org< Requirements: good written/oral communication skills and the ability to work effectively in a team-oriented environment. Associate's degree in biology or related field and one (1) year experience preferred or equivalent combination of training/experience in the care of mammals, preferably hoofstock, carnivores and primates. All candidates must have the ability to lift 80 lbs. and a willingness to work outdoors. A willingness to work weekends, holidays, and/or overtime is also required.

Zoo Keeper

Applications may be obtained from City of Fresno Personnel Department, 2600 Fresno St., Fresno, CA 93721, (559) 621-6950. Job bulletin and application can also be found on the website - www.fresno.gov< EOE Filing deadline is 5:00 p.m. Friday, **16 May, 2003**. Postmarks are not accepted. Responsibilities: The care, feeding, maintenance, and observation for health and reproduction of a variety of zoo animals at the Chaffee Zoological Garden of Fresno. Requirements: One (1) year experience in the care, handling and feeding of animals in a zoo setting. Twelve (12) semester units of accredited college level course work in animal science, zoology, biology, wildlife management, or closely related field may be substituted for six (6) months of required experience. Knowledge of behavioral enhancement of exhibits, setting up breeding conditions, and specialized requirements of raising young is desirable.

General Working Supervisor - For Mammal, Reptile and Bird Departments

Please mail or fax resumé to Dean Harrison, Out of Africa Wildlifepark, 9736 No. Ft. McDowell Rd, Scottsdale, AZ 85264. Phone (480) 837-6683, Fax (480) 837-7379. Visit our website at www.outofafricapark.com< **Position open until filled**. Requirements: Must have degree, four (4) years management, good people and communication skills. Experienced caregiving for many types of species, able to speak publically to large audiences, while interacting with animals in a full contact setting is necessary. Lifting up to 100 lbs may be required. Weekend and holiday work is necessary, according to shift. Salary depends on experience. Full benefits.

Elephant Handler

Send resumé to: Natural Bridge Zoo, P.O. Box 88, Natural Bridge, VA 24578 or Fax (540) 291-1891 or phone (540) 291-2420 or email NaturalBridgeZoo@hotmail.com< Responsibilities: The care and husbandry of two female African elephants (19 years old) in free contact. Requirements: Minimum of three (3) years experience working with elephants. Must be able to do rides, demonstrations and give talks to the public. Looking for an eager, energetic, friendly, self-motivating person. Housing available.

Reptile Internship

To apply send a cover letter, resumé, and at least two (2) (preferably 3) references to: Kristen Wiley, Internship Coordinator, Kentucky Reptile Zoo, 200 L & E Railroad, Slade, KY 40376. Or send via email to: kyreptil@mailhost.mis.net< **The deadline for application for the Fall internship is 1 June 2003**. Starting dates are flexible, but a minimum commitment of three months covering SPRING (March - May), or SUMMER (June - August), or FALL (September - November) is required. Deadlines for applications each year are: SPRING - February 15th; SUMMER - March 1st; and FALL - June 1st.

The Kentucky Reptile Zoo, a nonprofit organization, is seeking a student intern for the 2003 Fall season. The zoo is an educational exhibit, reptile breeding and venom research facility located near Kentucky's Red River Gorge and Natural Bridge State Park. Responsibilities: The intern will assist in the captive maintenance of the zoo's reptile collection, collect admissions to the exhibit, give interpretive talks and interact with the public, assist with educational outreach programs, and perform

other duties as assigned. In addition, the intern will be responsible for the completion of at least one research project related to the field of herpetology. The intern will **not be involved** in the handling of any venomous reptiles. Requirements: Desirable qualifications include a willingness to handle snakes and other reptiles on a daily basis, ability to communicate effectively with people, writing skills, orientation to details, and self-motivation. The intern will be required to work both Saturday and Sunday, with days off during the week. Students majoring in the biological or natural sciences are preferred. Former interns have arranged for academic credit with their colleges or universities. Interns have also been successful in finding zoo keeper positions, with a hire rate of over 95%! Benefits include experience with the most extensive and diverse collection of snakes in the United States, housing, and \$55/week to cover expenses. Personal transportation is recommended.

Aviculture Interns

For more information on internships at **KBCC**, please send a resumé, cover letter, and the names and contacts of three (3) references to: Tracey Goltz P.O. Box 39 Volcano, HI 96785 or fax: 808-985-7034. **OR**, for more information on internships at **MBCC**, please send this information to: Mary Schwartz 2375 Olinda Road Makawao, HI 96768 or fax: 808-572-3574. For the Hawaii Endangered Bird Conservation Program at the Keauhou Bird Conservation Center (KBCC) on the Big Island of Hawaii and the Maui Bird Conservation Center (MBCC) on the island of Maui. Responsibilities: Daily tasks include husbandry duties such as: diet preparation, aviary and facility maintenance, behavioral observations of breeding birds, grounds keeping, predator control. Requirements: Applicant must be able to live with several roommates in a remote area and should show enthusiasm for work with captive endangered Hawaiian birds. Applicant must have a valid driver's license and health insurance. Internships last for a 3-6 month period. Interns receive \$20/day stipend plus housing.

Service Opportunities or Internships

See additional information and application at our website - www.tigercreek.org< Commencement date: Open. Duration: Month by Month. Interested in learning more about big cats and a career path? Consider a service opportunity at TCWR. Two (2) positions currently available at Tiger Creek Wildlife Refuge, Tyler, TX. Interns are utilized for animal care positions through a qualification system. We provide: Room & Board, Materials and Curriculum, Indoctrination and Safety Training, Opportunity for full-time paid animal keeper positions (after training).

Marine Mammal Internship

Interested candidates should submit a cover letter and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Nicole Begley, One Riverside Drive, Camden, NJ 08103. Responsibilities: Learn daily activities involving animal care and training with our Seal Team. Duties include food preparation, exhibit cleaning, creating enrichment devices and observing training. Requirements: Candidates should be comfortable with public speaking, have course work in biology/psychology, prior animal experience, be able to work outdoors, and lift 50lbs. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid

Internship Opportunities - National Aquarium in Baltimore

To apply for any of the following internship positions go online at www.aqua.org/education/internships to obtain an application form. A complete application includes contact information, answers to brief statements listed, and a copy of college transcript. Complete applications should be sent to: National Aquarium at Baltimore-Internships, Pier 3/501 East Pratt St., Baltimore, MD 21202.

Application Deadline: ongoing - 1 November 2003 for January and Spring terms of 2004; 1 April 2004 for Summer and Fall 2004 terms; All interns must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid. For further information contact the National Aquarium in Baltimore's Internship coordinator at intern@aqua.org or call (410) 576-3888.

Aquarist Intern

Responsibilities: The selected candidate will assist the Aquarium aquarist staff with daily care of the Aquarium's invertebrates and fish. Assist with tank maintenance and cleaning; Prepare daily diets and perform daily feedings; Assist in the maintenance of back-up areas; Conduct precise record keeping; Perform special projects to be determined by the aquarist staff. **Requirements:** College juniors or seniors enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field. Must be able to lift 50 lbs, climb up a 6' ladder, and be able to squeeze across a 15' long x 12" wide platform.

Aviculture Intern

Responsibilities: The selected candidate will assist the Aquarium aviculture staff with daily husbandry activities in the South American Rainforest exhibit. Assist with and perform diet preparation and distribution; Conduct animal observations; Assist in the cleaning of holding areas, kitchen, and food prep areas; Provide enrichment to the aviculture collection; Perform special projects as determined by the aviculture staff. **Requirements:** Interest in working with birds. Enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science, or a related field.

Herpetology Intern

Responsibilities: Tend the "Hidden Life" exhibits (large wall terrariums where small, neotropical lizards, frogs, snakes and invertebrates are on public display); Mist and clean the off-exhibit colony of small arboreal lizards; Mist, clean and otherwise help tend the large, off-exhibit collection of neotropical frogs; Prepare diets for and feed the on and off-exhibit iguanas and tortoises; Tend the locust (live food) colony, orb-weaving spiders and colonies of non-venomous exotic arthropods (wood and hissing roaches, millipedes and walking sticks); Assist in the maintenance of the live food cultures (fruit flies, springtails, crickets, rats, mice); Conduct and record animal observations; Perform special projects as determined by the herpetology staff. **Requirements:** Must be enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science or a related field. Must be comfortable working with frogs, lizards, rodents and terrestrial arthropods.

Horticulture

Responsibilities: The selected candidate will assist the Aquarium horticulture staff with daily activities. Assist with care of plants in the Rain Forest exhibits; Conduct plant maintenance, fertilization, propagation, and transplantation; Assist in display development; Perform special projects as determined by the horticulture staff. **Requirements:** Must be enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field.

Marine Animal Rescue Program (MARP) Intern

Responsibilities: The selected candidate will aid in all aspects of marine animals rescue program (MARP) operations, which involves the rescue, rehabilitation, and release of stranded marine mammals and sea turtles and implementing outreach efforts of the Aquarium's Ocean Health Initiative. The selected candidate is also responsible for technical and clerical assistance for the Conservation Department staff as necessary. **Duties include:** Animal Care – participating in rescue and release trips, daily feeding, medical treatments, facility maintenance including cleaning and water changes, behavioral observations, and record keeping; Outreach – learning to interpret the MARP artifacts and conservation messages and participation in seasonal outreach and public education programs at the Aquarium and off site; Other duties as assigned – field work, etc. **Requirements:** Must be college junior or senior majoring in environmental science or related field with course work in biology and ecology. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work.

Marine Mammal Trainer Intern

Responsibilities: The selected candidate is responsible for providing support to the marine mammal training staff. This internship's primary purpose is to teach the intern training theory. *There is limited hands-on animal contact during the internship.* **Duties will include:** Prepares daily animal diets and dispenses vitamins as instructed; Responsible for the cleanliness and safety of all animal back-up areas; Assists in training, husbandry, and medical sessions; Participates in pre-show and pre-session preparations; Periodically participates in sessions involving swimming during enrichment and play sessions – no animals involved; Other duties as assigned. **Requirements:** Must be college junior or senior majoring in life science or related field. Must have a basic understanding of marine mammal natural history. Must have good swimming skills. Must work well as a team member. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work.

Water Quality Lab Intern

Responsibilities: The selected candidate will assist in the water quality testing of all fish and mammal systems throughout the aquarium. Duties include testing water for salinity, pH, ammonia, nitrite, alkalinity, and copper according to lab procedures, and recording neat, accurate data. The selected candidate will work closely with the Lab Technicians and the Animal Husbandry staff. **Requirements:** Must be college junior or senior with general biology and chemistry work. Strong math skills and computer proficiency preferred. Must be available to work mornings.

Volunteer Opportunities in Belize

Interested persons should contact: Robin Brockett, P.O. Box 431, Belmopan, Belize, Central America; e-mail: wildlifecarecenter@yahoo.com < phone: (501) 614-3043

The Wildlife Care Center of Belize is a private wildlife holding facility for native confiscated and rescued wildlife. One of the primary goals of the Center is to rehabilitate and repatriate howler monkeys and parrots. The Center is non-profit and operates entirely on donations and research grants. Volunteer opportunities exist for responsible, energetic and self-funded individuals. Preference is given to those with zoological experience and an understanding of established guidelines for the reintroduction of wildlife. Volunteers must commit to a minimum of two weeks (longer periods are preferable), follow directions well, and be capable and confident working alone.

Responsibilities:

Three to five days of training are required before working alone.

Long work days – generally 6 a.m. to 6 p.m.

Demanding physical labor and lots of walking.

Hot, humid, buggy conditions – rain and mud during the wet season.

Work may involve collection of natural food items, frequent feedings, behavioral data collection, fieldwork and camping depending on time of year, construction and maintenance work – chopping bush, cage building, construction of caging, maintenance of buildings and clearing trails. Expect very little “hands-on” with animals. Fieldwork is generally conducted between February and June of each year.

Requirements: Proof of a negative TB test or vaccination within 6 months of arrival; Resumé and e-mail addresses of two (2) references; Current passport; Sufficient funds for the time period; Minimum two-week commitment but longer is preferred; Healthy, physically fit, and a non-smoker; Must be able to follow verbal and written instructions, follow protocols exactly and work well alone; No vaccinations are required, however malaria prophylaxis is recommended.

General Expenses (*Approx. U.S.\$:*)

Airfare varies – direct flights available on American, US Airways, TACA or Continental from Miami, Houston, Dallas and Charlotte, N.C.

Departure tax \$40.00.

Taxi from airport to bus station in Belize City \$20.00.

Bus fare to Monkey Bay Wildlife Sanctuary \$6.00.

Camping at Monkey Bay \$5.00/night.

Meals run between \$3.00 - \$10.00 each. Monkey Bay offers some meals with advance notice, or there are several restaurants within walking distance. No cooking or refrigeration is available.

Over one month stay requires an extended visa at a cost of 25.00 per month.

*Positions posted with AAZK, Inc. may also be found on
our website at www.aazk.org*

*Also, you may want to check out the AZA Member Institution job listings
at <http://www.aza.org>*

AAZK Membership Application

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Mail this application to: AAZK Administrative Offices, 3601 S.W. 29th, Suite 133 Topeka, KS 66614-2054. Make checks/money orders payable to AAZK, Inc. Must be in U. S. FUNDS ONLY. Membership includes a subscription to *Animal Keepers' Forum*. The membership card is good for free admission to many zoos and aquariums in the U.S. and Canada.



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"ELIHU" & "CATHY"
Gay Perry
'93

**The Journal of the American
Association of Zoo Keepers, Inc.**

JUNE 2003

Managing Editor: Susan D. Chan • **Associate Editors** • Gretchen Ziegler, Sequoia Park Zoo & Kayla Grams, Lovell, WY • **Enrichment Options Coordinators:** Jan Roletto, Eureka, CA & Dawn Neptune, Utah's Hogle Zoo • **Legislative Outlook Column Coordinator:** Georgann B. Johnston, Sacramento, CA. • **ABC's Column Coordinator:** Diana Guerrero, Big Bear Lake, CA • **Reactions Column Coordinator:** William K. Baker, Jr., Little Rock Zoo • **The Water Column Coordinators:** Dan Conklin and Kevin Shelton, The Florida Aquarium and Bruce Elkins, Indianapolis Zoo

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also serves as AAZK Liaison to the American Zoo & Aquarium Association (AZA)

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AAZK Enrichment Notebook - Lee Houts, Folsom City Zoo



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About the Cover.....

This month's cover features "Elihu" and "Cathy", African lions (*Panthera leo*) drawn by Amy Burgess of Disney's Animal Kingdom in Orlando, FL. The basis of a resident pride is a group of female lions and their young. Groups of males or a single male will join the group for an indefinite period and defend the pride against the approach of outside males. The male lion's mane serves to protect the neck during intraspecific fighting. The lion has at least nine distinct vocalizations. The roar, which can be heard by people up to five miles away, is usually given after sundown, then again after a kill and after eating. It apparently has a territorial function. The lion also proclaims territory by scent marking through urination, defecation and head rubbing through brush. Lion litters range from 2-7 cubs, born after a gestation period of 105-119 days. The different lionesses in the pride are usually related and raise their cubs as a community with cubs suckling from females not their mother. The lion reaches sexual maturity between 2 1/2 and 3 years and may have a lifespan of 15-25 years. Adults weights range from 220-420lbs. (100-190kg). Powerful hunters, the lion kills its prey by choking it with a bite to the throat. Thanks, Amy!

Animal Keepers' Forum publishes original papers and news items of interest to the animal keeping profession. Non-members are welcome to submit articles for consideration. Articles should be typed or hand-printed and double-spaced. Authors are encouraged to submit their manuscripts on a disk as well as in hard copy form. Manuscripts submitted either on disk or electronically as attachments to an email should be submitted in Microsoft WORD. All illustrations, graphs, charts and tables should be clearly marked, in final form and should fit in a page size **no greater than 5.5" x 8.5"** (14cm x 22cm). Literature used should be cited in the text (Brown, 1986) and alphabetically in the final bibliography. Avoid footnotes. Include scientific name (as per ISIS) the first time an animal name is used. Thereafter use common name. Use metric system for weights and measurements (standard equivalents may be noted in parenthesis). Use the continental dating system (day-month-year). Times should be listed as per the 24-hour clock (0800, 1630 hrs. etc.). Glossy black and white or color prints (minimum size 3" x 5" [8cm x 14cm]) are accepted. Clearly marked captions should accompany photos. Please list photo credit on back of photo. Photographs may be submitted electronically as either JPEG or TIFF file attachments.

Articles sent to Animal Keepers' Forum will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for AKF. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. Phone 1-800-242-4519 (US); 1-800-468-1966 (Canada); FAX (785) 273-1980; email is akfeditor@zk.kscoxml.com<

**Deadline for each regular issue is the 10th of the preceding month.
Dedicated issues may have separate deadline dates and will be noted by the editor.**

Articles printed do not necessarily reflect the opinions of the AKF staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

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E-Mail Addresses: You may reach Barbara Manspeaker at AAZK Administrative Offices at: aazkoffice@zk.kscoxml.com< You may reach Susan Chan and Animal Keepers' Forum at: akfeditor@zk.kscoxml.com<

AAZK Website Address: www.aazk.org

BFR Website: <http://bfr.aazk.org>

Scoops & Scuttlebutt



AAZK Website Update

For those of you who haven't visited the AAZK, Inc. website recently you may want to stop by. It has a brand new look and new navigation which should make it easier to find your way around the site. There are also two new sections which have been added: the Animal Behavior Management Committee and Enrichment Committee both have informational sections on the new site. This is the first phase of the restructuring with more to come down the road. Any suggestions and/or comments are welcome. Again make sure you stop by to see the new and improved site at <http://www.aazk.org>.

Milwaukee Chapter Supports ICZ

We would like to thank the Milwaukee AAZK Chapter (Milwaukee, WI) for their generous donation of \$250.00 in support of the First International Congress on Zookeeping which will be held in The Netherlands in October 2003. For more information visit their website at www.icz.org. If you or your Chapter would like to help support this historic event, you may send donations to AAZK, Inc. 3601 SW 29th St., Ste. 133, Topeka, KS 66614-2054 and designate your contribution to the ICZ.

Kori Bustard SSP Seeks Keeper Representative

The Kori Bustard SSP is seeking an enthusiastic individual, dedicated to the care and husbandry of kori bustards to work with the SSP in achieving its goals. Applicants must have access to email and must be able to serve a term of two years. Preference is given to those individuals, who have a minimum of two years of experience working directly with kori bustards on a routine basis. Duties include: developing a working relationship with kori bustard keepers at all institutions holding koris, fund raising for the SSP, and the production of an annual newsletter. Regular communication with the SSP Coordinator is expected. If interested, send letter of interest including qualifications to: Sara Hallager, Kori Bustard SSP Coordinator, National Zoological Park, 3001 Connecticut Ave, NW, Washington DC, 20008; email - hallagers@nzp.si.edu; phone 202-673-4740. **The deadline is 1 July, 2003.**

Donate Your Used Cell Phone to Help Communities and to Save Endangered Species!

Ever wonder what to do with your old cell phones? Well, wonder no more! Happy Hollow Park & Zoo in San José has set-up a permanent collection point to collect unwanted cell phones. All cell phones collected will be sent to [The Wireless Foundation](http://www.wirelessfoundation.org). The Wireless Foundation supports programs that address some of our country's greatest challenges through creative applications of wireless technology. Their efforts include programs that apply wireless technology to help address challenges facing American communities.

For each phone donated, Happy Hollow receives funds from the Wireless Foundation. All the funds raised will be donated to the non-profit Balikpapan Orangutan Society [<http://www.orangutan.com/index.htm>], which works to preserve one of the most critically endangered species on earth, the orangutan and its habitat. This program also protects the environment from toxic waste from throwing away unwanted phones and save resources by reusing the phones. If you'd like more information on Cell Phone Recycling at Happy Hollow Park & Zoo, please contact Vanessa Rogier at 408-277-3065. or e-mail her at Vanessa@bayarea.net

Mail phones to: Happy Hollow Park & Zoo, Cell Phone Recycle, 1300 Senter Road, San José, CA, 95112.

T-Shirt Sale Benefits Chelonian TAG

The Chelonian Advisory Group is offering T-shirts for sale. Shirts come in stonewashed blue, sage, white, and sand. The shirts have "ChAG" on the front, and the new ChAG logo on the back. The ChAG logo has an Alligator snapper, Mccord's snakeneck, and a Spider tortoise. Shirts are \$15.00 (which includes s&h) and all profits go to Chelonian TAG projects. If you would like to order a T-shirt, send a check made out to **Tennessee Aquarium** to: Patti Shoemaker, CZ Houston Zoo Inc., 1513 N. Mac Gregor Houston, TX 77511. Don't forget to include your name, complete mailing address, quantity desired, color choice(s), and shirt size(s) (S-XXL).

Coming Events

2003 Animal Behavior Society's Annual Meeting
19-23 July 2003 at Boise State University in Boise, ID. For further information, see www.animalbehavior.org/ABS/program or contact local hosts Jim Belthoff (jbelttho@boisestate.edu) or Al Dufty (aduffy@boisestate.edu).

Invertebrates in Captivity Conference - 30 July - 3 August 2003. Hosted by the Sonoran Arthropod Studies Institute, Tio Rico, AZ. Visit www.sasionline.org or call (520) 883-3945.

American Federation of Aviculture, Inc. 29th Annual Convention - 6-9 August 2003 in San Antonio, TX. National and international speakers, roundtables, workshops, exhibit hall, auctions, raffles and banquet. For more information visit www.afa.birds.org or call the AFA office at (816) 421-2473 or email afaoffice@aol.com.

Association of Avian Veterinarians 24th Annual Conference & Expo - 25-29 August 2003 in Pittsburgh, PA. To view the entire program and to register on the web, visit www.conferenceoffice.com/AAV. To contact the AAV Conference Office, email AAV@conferenceoffice.com; phone (303) 756-8380; fax (303) 759-8861.

American Zoo and Aquarium Association (AZA) Annual Conference - 7 - 11 September 2003 in Columbus, OH. Hosted by Columbus Zoo and Aquarium. For more information contact Patty Peters: e-mail ppeters@colzoo.org

2003 AZAD Annual Conference - 9-14 September 2003. Hosted by Omaha's Henry Doorly Zoo, Omaha, NE. Interested parties may contact Judy Sorensen at 10969 North Lakeshore Dr., Blair, NE 68008 or by email at howard@nfinity.com

2003 Association of Zoological Horticulture - 13-18 September 2003. Hosted by Toledo Zoo. For more information contact Alan Donges at (419) 385-5721 ext. 2149 or email greenhouse@toledozoo.org

ChimpanZoo Annual Conference - 19-21 September 2003 in Sacramento, CA. Theme for the 2002 ChimpanZoo Conference is "A Closer Look at Chimpanzee Play". In conjunction with the Sacramento Zoo; includes presentations, special events, and a public lecture by Dr. Jane Goodall. Other special guest speakers include: Penny Patterson, Ph.D., Robert W. Shumaker, Ph.D., Lyn Miles, Ph.D. and Cristina Ellis. Conference information at <http://chimpanzoo.arizona.edu/Conference/2002/2002.html>

The Aquarium and Zoo Facilities Association - 21-24 September 2003, hosted by the Philadelphia Zoo. For info visit www.azfa.org or contact Matt Suydam at (215) 243-5355 or fax (215) 243-5391.

30th National AAZK Conference - 26-30 September, 2003. Hosted by the Greater Cleveland AAZK Chapter and Cleveland Metroparks Zoo. Watch for further information in upcoming issues of *AKF*. Registration and Hotel Forms may be found in April issue and will appear again in the July *AKF*.

Zoological Registrars Association (ZRA) 2003 Conference - 2-4 October 2003, hosted by the Brookfield Zoo. For info visit www.zra.homestead.com or contact Debbie Johnson (708) 485-0263 ext. 460; email dejohnso@brookfieldzoo.org or contact Pam Krentz at pak@clevelandmetroparks.com

Elephant Managers Association Conference - October 2-5, 2003 - Hosted by Knoxville Zoological Gardens, Knoxville, TN. For more information, call (865)-637-5331, ext. 359 or e-mail bhargis@knoxville-zoo.org

First International Conference on Zookeeping in 2003 - The Netherlands - Will be held between 2-10 October at Birdpark Avifauna. For further information please visit: www.iczoo.org

American Association of Zoo Veterinarians - 5-9 October, 2003 in Minneapolis, MN. For additional information, visit the AAZV website at www.aazv.org or contact Wilbur Amand, VMD, Executive Director/AAZV, 6 North Pennell Rd., Media, PA 19063; Phone (610) 892-4812; Fax (610) 892-4813; email AAZV@aol.com

The Sixth International Conference on Environmental Enrichment - 2-7 November 2003 in Johannesburg Zoo, South Africa. Sixth International Conference on Environmental Enrichment in Johannesburg Zoo, South Africa. Hosted by the Johannesburg Zoo. For more information on the conference, including fees, registration facilities, reduced flights and pre- and post-conference tours, please go to www.jhbzoo.org.za or contact Mathew van Lierop at mathew@jhbzoo.org.za or on +83 600 2677.

ACVP/ASVCP 2003 Concurrent Annual Meeting - American College of Veterinary Pathologists and American Society of Veterinary Clinical Pathology joint meeting - 15-19 November, 2003 in Banff, Alberta, Canada. For more info contact ACVP at: Phone - (608) 833-8725 ext. 145; Fax - (608) 831-5485; email - meetings@acvp.org; web - www.acvp.org/meeting/

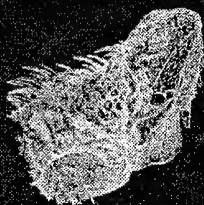
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OF THE

GREEN IGUANA

This multiauthored book spans a range of topics relevant to those individuals interested in keeping, breeding, and understanding health problems of the green iguana (*Iguana iguana*). It offers a unique synthesis of the work and experiences of biologists, nutritionists, and veterinarians who have worked with green iguanas, both in the field and in captivity, and it presents the most current, and in some cases previously unreported, information on iguana biology and medicine. Topics include biology and reproduction in the wild, nutrition in the wild and in captivity, ontogeny of captive iguanas, husbandry, clinical evaluation, diseases, drug dosages and chemotherapeutics, anesthesia and surgery, and diagnostic imaging.

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SEEKING FUNDING FOR LEBARUA SCHOOL LUNCH PROGRAM

*By Patty Pearthree
National Bowling for Rhinos Chair
Cary, NC*

If anyone has extra funds that they would like to see go to an education/conservation program, this is the perfect project! The Lebarua elementary school is just outside of Lewa Wildlife Conservancy in Kenya.

When I visited Lewa in December, 2002, I discovered that the school kids at Lebarua (one of the five schools Lewa supports) are expected to stay at school all day but the only nourishment they get is milk for lunch, and many walk an hour each way to school. We all know how important proper nutrition is for learning so I thought the best thing additional funding could support would be a lunch program.

The Education Officer, Anne Ruhui's suggestion for a meal is maize and beans and she has calculated the cost based on other lunch programs in the area. The cost to feed one child on a meal of maize and beans would be \$5.20 per term and considering Lebarua has a pupil population of 226, this would amount to \$1,175/term. There are three terms in a school year, therefore **to feed the whole school for a year would cost \$3,526!**

Rural farmers in Kenya have suffered as human and wildlife populations have been forced to share increasingly limited land. Crops are regularly damaged by wild animals and predators kill domestic stock which builds up a mistrust and misunderstanding of wildlife. The solution to living in harmony lies in the sustainable use of wildlife with local support and participation. Wildlife must bring tangible benefits to the communities it shares the land with if the people are to view it as an asset rather than a liability. A value must be placed on wildlife and the revenue it earns must radiate outwards to the communities. Lewa aims to improve the education and the educational facilities and encourage the conservation of wildlife.

The only assistance that the Kenyan government, through the Ministry of Education, provides towards Kenya's primary schools is to supply the teachers and pay their wages. Everything else like textbooks, writing materials, desks, blackboards and the buildings themselves have to be supplied by the local community. It is very difficult for parents to fulfill these requirements considering that an average rural Kenyan family consisting of roughly five children earns a wage of \$2/ day on average.

Lewa's aim is to give children on their boundaries access to the best possible education and to create an awareness of the importance of conservation. All of the classes are invited to tour Lewa where most see animals such as rhino and elephant for the first time in their lives. Lewa built five schools in the surrounding area and a trust fund pays for the top student from each school each year to continue on to secondary school. A school lunch program is one of the main objectives for all five schools in the coming years.

This is a special project for AAZK that is intended to be in addition to "Bowling For Rhinos" (BFR) and not meant to take away from the BFR effort. We want to make this project available for those wishing to support conservation through education. If your Chapter would like to support the "Adopt-A-School" program, please make checks payable to: AAZK, Inc. and mail to:

"Adopt-A-School Program", AAZK Administration Office
3601 SW 29th St., Suite 133
Topeka, KS 66614-2054 USA

AAZK Announces New Members

New Professional Members

Jennifer Vincent, Jessica Schera and Katrina Bell, **Cape May County Zoo (NJ)**; Salvatore DiStefano, and Jessica Papallo, **The Philadelphia Zoo (PA)**; Nichole Morabito, no zoo listed (**Bronx, NY**); Jessica Heisen and Bar Carter, **The Academy of Natural Sciences (PA)**; Carlos Jimenez, DVM, no zoo listed (**Coatesville, PA**); Tracey Ambrose, **Baltimore Zoo (MD)**; Saen Mullix, **Busch Gardens (FL)**; Angela Johnson, **Louisville Zoo (KY)**; Eric Duning, **Cincinnati Zoo (OH)**; Carrie A. Kasnicka, and Susanne K. Wyatt, **Indianapolis Zoo (IN)**; Rebecca Welter, **Minnesota Zoo (MN)**; Lynn Drewke, **Phillips Park Zoo (IL)**; Amy J. Keeton, **Kansas City Zoo (MO)**; Lisa Whaley, **Ponies & Pals (TX)**; Denise Ibarra, James O'Brien and Will Burch, **Abilene Zoo (TX)**; Mary K. McCall, **Heritage Park Zoo (AZ)**; Irma MacLeod, **Los Angeles Zoo (CA)**; Lori Bayour, no zoo listed (**Chino Hills, CA**); Cherie Mascis, Lori Bayour, **Turtle Bay Exploration (CA)**.

Renewing Contributing Members

Elliott Schwab, Volunteer
Memphis Zoo & Aquarium
Memphis, TN

Ron Manseau, Docent
Detroit Zoological Park
Royal Oak, MI


IX International Otter Colloquium

The IX International Otter Colloquium will be hosted on the campus of Frostburg State University on 4-10 June 2004. The meeting is a truly international event and is expected to be attended by participants from at least 40 countries—the two most recent colloquiums were in Chile and the Czech Republic. However, the colloquium has not been hosted in North America since 1985 and we are hoping that conservation professionals and others from the continent with an interest in otter biology, ecology, and conservation will be well represented. For information see (<http://otter.frostburg.edu/index.htm>) Please monitor the web page for announcements calling For Papers and Posters and other colloquium developments. Please pass this announcement along to colleagues. Many thanks.


Thomas L. Serfass, Ph.D., Dept. of Biology
Frostburg State University
Frostburg, MD 21532
(301) 687-4171

We will be organizing several sessions on topics concerning otters in captivity to include: anesthesia, management for breeding, health care, effective exhibits, and others. If there are specific areas of interest to you please let us know.

Jan Reed-Smith
jsmith@colszoo.org



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Final Call For Papers

Deadline for abstracts: July 1, 2003

Deadline for papers: August 26, 2003

Our theme for the conference is "Strange Situations... Wild Occupations." We are looking for papers, posters, or workshops that address novel issues in the zoo keeper profession. Presentations involving all taxons are desired. Topics of interest include husbandry techniques, training, enrichment, education, exhibit design, conservation, research, and professional development.

Four workshops are already planned for the conference. Presenters and moderators are requested for aquatics, avian husbandry, herpetology, and primatology. Workshops involving other topics are also strongly encouraged.

Abstracts must include the following information:

- Name of presenter and co-authors
- Zoological institution
- Position or title
- Title of paper, poster or workshop
- Short bio of yourself (for introduction)
- Audio/Visual needs

Please limit abstracts to one or two paragraphs. Abstracts must include in detail the significance of the topic to be presented along with the results, conclusions, or benefits of the work described. Poorly written or incomplete abstracts will be returned.

Submit **two** copies of the abstract to:

Shane Good, Animal Keeper
Cleveland Metroparks Zoo
3900 Wildlife Way
Cleveland, OH 44109

Email: sjg@clevelandmetroparks.com
Phone: (216) 661-6500
Fax: (216) 661-3312

Take Note! "Cleveland Challenge" Deadline Near!

For those Chapters wanting to enter the "*Cleveland Challenge*," this is your last opportunity, (a chance for a full registration and a double occupancy room all paid in full for a minimum \$250 or more donation). See details in March 2003 *AKF*, page 94. All donations must be received by **15 July 2003** to be entered. Make the check payable to **2003 AAZK Conference** and send to Debbie Kuscevic. We have had a good response so far, especially from the "smaller" Chapters. Remember, the more support we get from you, the more successful the conference will be. We need your help.

**2003 AAZK NATIONAL CONFERENCE
CLEVELAND, OHIO
SEPTEMBER 26 – 30, 2003**



*PRE AND POST TRIPS REGISTRATION
(please print or type clearly)*

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Pre-Conference Trip Sept. 25 – 26, 2003 _____

Cost: TBD

Post-Conference Trip Oct. 1 – 2, 2003 _____

Cost: TBD

PRE-CONFERENCE TRIP - September 25 – 26, 2003

The group will be leaving the Sheraton City Centre at 7:00 AM on September 25, 2003 traveling to the Detroit Zoo. We will be staying in Toledo, compliments of the Toledo Zoo. The group will return to the Sheraton City Centre approximately 5:00 PM on September 26, 2003. **Cost: TBD (minimal)**

POST-CONFERENCE TRIP - October 1 – 2, 2003

The group will be leaving the Sheraton City Centre 6:30 AM on October 1, 2003 traveling to the Ohiopyle State Park for a day of whitewater rafting and enjoying the scenic highlands. We will then travel to the Pittsburgh Zoo and National Aviary. We will be returning approximately 8:00 PM on October 2, 2003. **Cost: TBD**

**Any questions you can e-mail Maureen Meslovich
at momeslo@cs.com or call (216) 661-6500**

ABC's

ABC's: Animal Behavior Concerns and Solutions

A Question & Answer Forum for Animal Professionals

©2003 by Diana Guerrero, Independent Behavior Consultant
Ark Animals of California, Big Bear Lake, CA



Guerrero has just returned from a short break. This column is a regular feature of AKF and resumes this month.

Behavior Evaluation: Japanese Macaque (*Macaca fuscata*) American Private collection.

Question

We have a Japanese Snow Macaque who has begun to bite. In addition, he torments the male (human) in the household. What can you recommend?

Answer

Background

This situation involves a nine-month-old male macaque. He was obtained at five months of age from a private home. This animal originated from a private breeder and was pulled from the mother within 24 hours. He is described as wildly active.

This animal is kept within a private home and sleeps with the owners. His indoor exhibit consists of a glass enclosed play area with ropes, swings, and enrichment items. His outdoor enclosure is a caged area with branches and enrichment.

This macaque is leash trained and takes several excursions each day. His animal companions include cats, goats, rabbits, a wallaby, and other barnyard animals. On occasion he is also "staked out" inside the home so that he has a small range and can wander around his owners. This procedure gives him limited mobility and additional social interactions while maintaining some degree of security.

This young animal sleeps with the owners and still nurses. He is heavily bonded with the female caretaker and screams when she disappears from sight. His diet consists of "monkey milk" and he consumes some vegetables and fruits. A new primate companion will be added to the household later this year.

Presenting Problem

This young animal bites, pulls hair, and slaps the owners' faces. He then runs. Initially he was given timeouts, which worked well to correct the problem. The relationship with his current caretakers changed when they followed the advice of other monkey owners to "bite" this animal when he misbehaved, or to pin him. At first, he would lip smack and cling in response. However now his aggression has increased and he has ceased to engage in conciliatory behavior.

Complications

The human male of the household inadvertently reinforces misbehavior through laughter and attention. In addition, he is inconsistent and engages in actions that thwart efforts to teach and reinforce proper behavior. Initially the human male was the preferred companion, over time the macaque's aggression toward the human male has increased.

Summary

These owners gained information through inappropriate sources and from people who were raising other species with different social patterns and interactions. This young male primate will continue to test the parameters as he matures into an adult. If current practices do not change, serious behavior challenges will occur.

Suggested Strategies

Consistency

This animal requires consistency from both owners. Client was encouraged to discuss and make agreements concerning the handling and discipline of the macaque with her partner. Since the directives came from a professional source rather than friends, it is assumed that there will be compliance.

Key Phrases

The use of key phrases was discussed. The words, “easy,” “gentle” and “no biting” are to be taught during interactions and paired with the proper response. When the animal complies, he is to be reinforced with attention and phrases that delineate what is the correct choice. Example: “Good no biting”

Change Behavior Patterns

Animal resistance occurs during efforts he perceives as negative, such as isolation from the humans. Human behavior is too predictable and instructions to vary procedures were given. The macaque will be placed in his cages with more variables. For instance, instead of always being given the command to “sit” and then left, he will now experience companionship, playtime, or be taken out again immediately. This variety will diminish the negative perception related to abandonment.

Prevention

Certain behaviors are predictable. For instance, tormenting the male owner during social time while the animal is tethered occurs daily. Move the human location so that these specific antagonistic behaviors do not occur. Solicit interactions at other times. Also understand the animal’s need for attention prior to escalation.

Release Word

For clarity the owners were directed to select a term to signal the animal that he is done with a certain behavior and can engage in “free time.” Clear delineation will assist the animal in understanding what is required and ease any confusion.

Play Activities

Play activities with the other animals serve as an outlet for this animal’s need for rough-housing. Play such as tickling, and games are encouraged as long as they do not involve chasing or rough behavior. Rough or antagonistic exchanges with humans can be ritualistic and are better avoided.

Replacement Items

A surrogate plush toy is suggested so that this young animal can cling to it when separated from the human female. Also, chew items or something to bite is recommended. The animal can be redirected to bite an appropriate object in play or in frustration instead of a human appendage.

Reinforce Proper Behavior & Extinguish Inappropriate Actions

The owner was directed to cease biting the animal. That action had negative influences on this animal. It put the animal into distrust and fear, and taught the animal to use increased aggression. To relate to this species, owners were directed to use body language, posture, eye contact and other ritualistic patterns of behavior rather than overt actions or force.

Read Appropriate Literature and Observe, or View Footage, of *Macaca fuscata*

Since the information the caretakers received pertained to the Rhesus monkey (*Macaca mulatta*) they were encouraged to seek proper literature and footage so they could learn about *M. fuscata* behavior and the subtleties of interactions. They were also encouraged to visit local zoos for live observation with specific directives as to what to look for.

About the Columnist: Since 1978 Diana Guerrero has worked professionally with both wild and domestic animals. She has been affiliated with and certified by a variety of animal programs in the USA and Europe. She currently writes, consults and leads safaris. Information and enrollment for her safaris, seminars, training courses and animal career programs can be found at her website: <http://www.arkanimals.com>. Publications and other training support items may also be purchased at the site. Questions for ABC's should be submitted to Diana directly via email: arkabc@arkanimals.com, through the ABC'S questionnaire on her website, or via regular mail: c/o ARKANIMALS.COM, P.O. Box 1989-215, Big Bear Lake, CA 92315 USA.

6th International Conference on Environmental Enrichment Call for Papers and Posters

All interested parties are invited to submit papers and posters for presentation at the 6th International Conference on Environmental Enrichment which will be held at the Johannesburg Zoo from 2 - 6 November 2003.

There is no specific theme for the conference and all relevant papers on enrichment will be considered for presentation. Papers may be of a scientific or non-scientific nature, but must focus on enrichment for captive animals. Each speaker will be allocated a 15 minute time slot with a five minute question session immediately following each presentation. Posters will be displayed for the duration of the conference with dedicated poster sessions where questions can be asked.

Please send an abstract of your poster or paper along with your relevant contact details to Mathew van Lierop, Enrichment Coordinator, Johannesburg Zoo by email (mathew@jhbzoo.org.za), post (Private Bag X13 Parkview, 2122, Sough Africa) or fax (+27 11 486 0244) **before 1 September 2003**. Please note that abstracts will only be reviewed upon confirmation of registration at the Conference online registration page (www.jhbzoo.org.za). Full papers are required **by 15 October 2003** for inclusion into the Conference Proceedings.

Please contact Mathew van Lierop, Enrichment Coordinator at the Johannesburg Zoo at mathew@jhbzoo.org.za or on +27 83 600 2677 should you require further information.

Survey Shows Apes Critically Endangered

A survey of the forests of west equatorial Africa, long considered the last stronghold of gorillas and chimpanzees, reveal that ape populations have "shrunk by more than half since 1983" due to logging, a spreading Ebola virus epidemic and hunting for bushmeat reported the *Washington Post* in early April. Scientists are "unclear" about what it would take to slow or halt the decline and recommend that gorillas and chimpanzees be immediately reclassified as "critically endangered" to "justify greater conservation measures." The new study documents a 56% decline since 1983 and "predicts that ape populations will decline another 80% in the next 33 years - less than two ape generations."

Source: *GREENlines Issue #1843 4/15/03*

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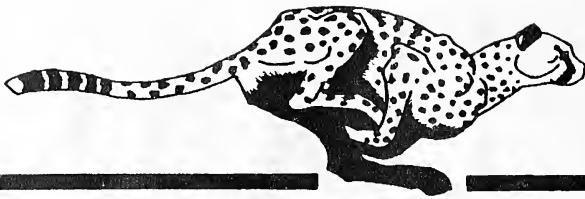
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REACTIONS

A Question and Answer Forum for the Zoo Professional on Crisis Management

*By William K. Baker, Jr., Curator
Little Rock Zoo, Little Rock, AR*

Question

Do you have any suggestions for stress management in the workplace?

Comments

As the years have gone by I have come to the conclusion that our profession is definitely not a stress-free work environment. Don't get me wrong, I love what I do as much as everyone else in our field. That's why we call it "the Profession", it's not just a job, but in a sense it defines and shapes us. As individuals it touches us on every level and as a group it speaks to our collective soul.

Still, on a day-to-day basis what we do isn't without its level of frustration and stressors. So often I hear from people outside the profession that it's like that everywhere. Over the past couple of years I have really tried to consider that from their point of view and I just have to disagree. In the context of what they go through at their jobs, yes they have stress, deadlines, and their share of idiots, but it just isn't the same. Our situation is inherently different because of the animal factor. If a project isn't completed on time, that's a problem to be sure, but when animals are involved and the situation isn't addressed, it becomes a quality of life issue.

This leads me to believe that the closest parallel is the medical profession. Yet, that doesn't address the issue of emotional attachment with our animal charges, something that veterinarians can appreciate, but would be significantly less applicable to a surgeon and a patient. In retrospect I would have to say that the animal factor has to be the key issue in all of this. We not only care for our animal charges, we defend them and look after their best interests. In my opinion this would be the reason we are so often frustrated with exhibit designers, ineffective managers, internal politics, poor communication, and aberrant personalities in our industry; All of this leads to frustration and at times to conflict in the workplace. So, we know about it and we live with it, the real question is what can we as individuals do about it?

Personally speaking, one of my best resources has been my close friends who also work in the industry. Sometimes it's just enough to sit down with friends who "get it" and commiserate about something you're going through. Since most zoological facilities are still municipally-based, the city's Human Resource department often maintains an EAP (Employee Assistance Program) that will offer a certain number of free visits to a counselor on a confidential basis. I highly recommend this approach to resolve short-term problems. I've known individuals who have used this program with good results.

One of the keys to long-term stress management is keeping everything in balance. Daily exercise is not only good for building strength and staying flexible for work, it's a great stress reliever and releases endorphins.

Develop activities away from work. What we do defines us as individuals, be versatile and develop hobbies, interests, and other activities. Some individuals seek quiet hobbies such as art, reading, or

writing to balance out work, while others find that loud, active hobbies such as music or dancing are better choices. It really doesn't matter what it is, as long as it works.

More difficult situations (ex: anger management) may require long-term counseling. The best option at this point is to speak to your Primary Care Physician (PCP) and discuss this for a referral to a licensed Counselor or Psychologist.

Don't forget, effective communication in the workplace can resolve most problems. I'll be the first to admit that having to take up the slack for other individuals' shortcomings is annoying. But, it has to start somewhere and if you have the ability, it's actually easier than suffering in silence.

Never give up hope. Change may be slow in coming, but all things can be facilitated, given enough time and effort. This holds true for the personal and the workplace.

Just a few closing thoughts, it has taken me a few years to put it all in perspective, and I'll be the first to admit that my drive, focus, and task-oriented personality has at times gotten the better of me. In the past, I have let the work overshadow my personal life, much to my personal loss. We learn by doing and life truly is a journey, not a guided tour. It is our individual responsibility to keep life in balance.

As I look back, a lot of people have kept it in balance, others haven't, and some just said "enough" and left the profession. The part that really concerns me is that so many professionals have left our field and moved on to something else. Every time someone leaves our profession we are collectively weakened and my biggest fear is what this is doing to the cause of conservation.

Next Month: We are putting together an emergency tool kit and are looking for specific suggestions. What would you stock it with?

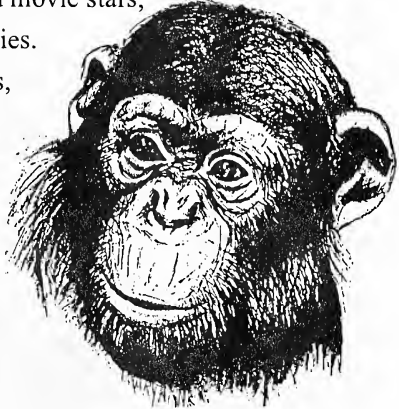
If you would like to submit a question for this column or have comments on previously published materials, please send them to AAZK, Inc., 3601 S.W. 29th St., Suite 133, Topeka, KS 66614 Attn: Reactions/AKF

(About the Author: Since 1985 Bill has been active in the fields of science, zoology, and wildlife management. His education and experience include a B.S. in wildlife management and post-graduate studies in zoology, Lab and Museum Assistant, Shoot Team Leader, ERT Member, Large Mammal Keeper, Senior Keeper, and Zoo Curator at various zoological facilities. His area of research is crisis management in zoological institutions, which draws upon practical experience and training as a Rescue Diver, Hunter Safety Instructor, NRA Firearms Instructor, and Red Cross CPR/First Aid Instructor.)

Cheeta of "Tarzan" Fame Named World's Oldest Chimp

Cheeta lives in this desert resort town like a lot of old movie stars, painting, playing the piano and watching his old movies. But as one of Palm Springs' only retired chimpanzees, he stands out. The last actor to have played the lead chimpanzee role in the Tarzan movies of the 1930s and '40s, Cheeta is 71 now - the oldest chimp in the world, according to the Guinness Book of Records.

--Associated Press



Exotic Diseases - Part I

Foot and Mouth Disease

(Editor's Note: The following Three Part series on Exotic Diseases is being reprinted here with permission from the author. It originally appeared in The Keeper, Spring 2003, the newsletter of the San Diego Chapter of AAZK. Look for Parts 2 and 3 in the July and August issues of AKF.)

*By Yvette M. Kemp, Sr. Mammal Keeper
San Diego Zoo, San Diego, CA*

It seems that in the last few years we have heard about more exotic diseases than we have in a long time. First it was the pyres of burning cattle carcasses from foot and mouth disease (FMD) in Europe, then it was West Nile disease on the east coast, now it's Newcastle disease in San Diego. It doesn't get any closer to home than that.

Since it is so close to home, there are precautions that we need to take to prevent the spread of Newcastle disease, and other diseases, into our work and, for many, into our homes. Learning about the diseases is a way of learning how to recognize their symptoms and how to prevent spreading them. The U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) are responsible for protecting U.S. livestock and are the sources for most of the following information. Hopefully, by sharing this information with you it will assist us in the care and disease prevention of the animals we are responsible for. If you would like more information, just log onto www.aphis.usda.gov, www.cdffa.ca.gov, and/ or www.nwhc.usgs.gov. It is amazing to see the amount of information we have at our fingertips.

FOOT AND MOUTH DISEASE (FMD):

FMD is defined as being a highly contagious viral infection that primarily affects cloven hooved animals, domesticated or wild, such as bovidae, sheep, goats, all wild ruminants and suidae. Other susceptible species are hedgehogs, armadillos, nutrias, elephants, capybaras, rats and mice. Animals with low susceptibility are the camelidae. FMD is characterized by fever and blister-like lesions followed by erosions on the tongue, lips, nares, in the mouth, on the teats, and between the hooves. There are at least 7 types and over 60 subtypes of the FMD virus, and

immunity to one type does not protect an animal against another type.

FMD can be confused with other similar but less harmful diseases such as foot rot in cattle and swine vesicular disease, but to determine if mouth or feet blisters are really FMD, laboratory tests must be completed. Other signs that may appear in affected animals include increased temperature, sticky and foamy saliva, reduced consumption, lameness and abortions. According to the USDA, FMD is not recognized as a zoonotic disease.

Unfortunately, FMD can spread widely and rapidly, and because it has devastating economic and clinical consequences, it is one of the animal diseases that livestock owners dread the most. It causes severe loss of meat and milk production and can lead to myocarditis (inflammation of the muscular walls of the heart). And although many animals recover from FMD, the disease leaves them debilitated.

There are several ways in which FMD can spread, but the main methods of contamination are by people, animals or materials with the virus coming into contact with susceptible animals. Other methods include raw or improperly cooked garbage containing infected meat or animal products being fed to animals, and inseminating a susceptible cow from an infected bull. The virus can also remain in contaminated fodder and the environment for up to 1 month, depending on temperature and pH conditions.

FMD is one of the most difficult animal infections to control because it occurs in many parts of the world. The U.S. has been free of FMD since 1929, but there is always a chance of an accidental introduction. If an outbreak were to occur here, it could spread rapidly by routine livestock movements. Then deer and wildlife populations could become infected and be a source for re-infection of livestock. Were this to happen, the economic impact could reach billions of dollars in the first year.

Once an animal has been exposed to FMD, signs may develop in as early as 12 hours. When sheep or goats are infected, the disease may not be diagnosed for a considerable time because signs and lesions can be very mild. Meanwhile, infected pigs tend to develop signs in 3 to 5 days. Unfortunately, FMD spreads rapidly in pigs who can then produce 100 million infectious doses per day! According to the USDA, in an outbreak of FMD, the roles of the 3 primary hosts in

transmission are as follows: sheep act as maintenance hosts, pigs act as amplifiers, and cattle act as indicators.

Although the mortality rate of FMD is essentially 100% in a susceptible population of domestic animals, it does not pose a health risk to humans. In an outbreak in Israel, there was also a high mortality rate (at least 50%) in wild mountain gazelles; severe viral pancreatitis accounted for their high mortality.

In 1951, a FMD vaccine was produced but when vaccinating animals, the vaccine should contain the same subtype of virus as the one in the area. This means that frequent checking of the serotype and subtype during an outbreak need to be done because FMD virus frequently changes during natural passage through various species. Vaccinated animals that are not completely protected can be a source of infection. The virus may replicate and be shed, but the animals may not show any clinical sign of infection.

The USDA has maintained a continued vigilance against FMD, as well as other animal diseases. Since the outbreak in Europe and other countries, it has increased safeguarding measures against the disease. Some of the measures taken include:

1. Emergency operations centers to coordinate communications, answer technical questions, and provide consumer/traveler information about FMD and other related issues.

2. Heightened alert and increased inspections at ports of entry, borders and airports.

3. Heightened alert and increase coordination of programs in states across the country.

4. Heightened awareness and monitoring the FMD situation worldwide to ensure proper protections are in place in other countries that have confirmed cases of the animal disease.

5. Implementing a renewed public education campaign for travelers.

The official attitude of a country regarding control of a disease depends on how seriously the disease affects the country, the financial and technical ability of the country, and what its neighbors are doing. Fortunately for us, Tripartite Exercise 2000, an FMD outbreak simulation involving Canada, Mexico and the U.S., was conducted and resulted in a committed effort by all 3 countries to collaborate on their efforts to prevent FMD in North America.

Next Month: West Nile Virus

Wolf Notes

Excerpted from GREENlines Issues from the Endangered Species Coalition

- Wyoming has suspended “one of its top predator biologists” for making statements critical of the state’s proposed wolf management plan, which would allow essentially unregulated killing of wolves outside of two national parks and adjacent wilderness areas (where they could still be hunted as trophy game) reports the *Billings Gazette*. Game and Fish Dept. biologist, Dave Moody, told colleagues at a conference on wolves that “the plan approved by the Wyoming Legislature would not do enough to ensure a sustainable wolf population in the state,” and could delay efforts by the Bush administration to end ESA protection and turn over wolf management to Wyoming. Other employees at Game & Fish have since contacted, Public Employees for Environmental Responsibility because they are “afraid of the implications” of Moody’s suspension.

- Idaho Gov. Dirk Kempthorne has signed legislation “which starts the process of removing wolves from the endangered species list and turns management of the wolves over to the governor’s Office of Species Conservation” reports the *Idaho Statesman*.

- The USFWS is offering a \$10,000 reward for information on the person or persons responsible for the shooting deaths of endangered Mexican gray wolves reports SFGate.com. A necropsy confirmed that a gray wolf found in eastern Arizona in March died of a gun shot wound, the eleventh Mexican gray wolf shot to death since August of 1998. The male wolf from the Cerro Pack had “recently paired with a female - the third natural pairing since the reintroduction program began in New Mexico and Arizona.

- A study by the Wildlife Conservation Society, just published in “Biological Conservation,” confirms warning by conservationists that “the Bush administration’s proposal to remove grizzly bears and wolves living in the Greater Yellowstone Ecosystem from the ESA is premature” reports the Environment News Service. The new research questions assertions by the Interior Dept. that increased numbers of grizzlies and wolves is “evidence of conservation success that merits delisting both species” and states that “an increase in numbers does not correlate to full ecological recovery.” According to the WCS, “Recovery should be defined by a suite of ecological processes rather than a simple headcount.”

Wings of Asia Aviary Reopens

Ten years after Hurricane Andrew decimated the *Wings of Asia* Aviary at Miami Metrozoo, the aviary is back and with a whole new story to tell. The American Banker's Aviary, the *Wings of Asia*, officially opened on 3 May, 2003.

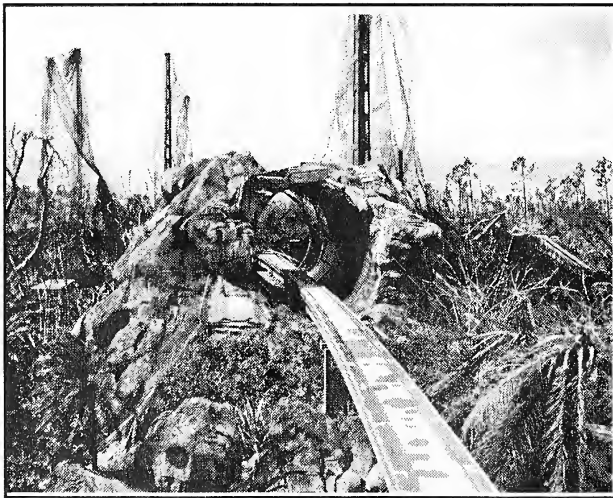


New Entrance for *Wings of Asia*

Covering over 54,000-sq. ft., this is the largest open-air Asian aviary in the Western Hemisphere. Four hundred exotic, rare and endangered Asian birds representing more than 70 species are found in *Wings of Asia*. The original aviary, opened in 1984 and destroyed by Andrew in 1992, contained some 300 birds, many of which were killed or blown away by the storm.

Approximately 100 of the birds from the original aviary were never found. The current bird collection includes cranes, rails, mynahs, parrots, pheasants, thrushes, fruit-pigeons, barbets and woodpeckers. They range in size from a 10-gram Japanese white-eye to a 7,000-gram sarus crane. Among the exhibit's more notable birds are black-browed barbets, sultan tits, Javan cochoas, and blue-masked leafbirds. Many of these species are rare in zoos and some can only be seen at Miami Metrozoo.

The expanded aviary covers 2.6 acres and its tent-like design has more than 90,000 sq. ft. of stainless steel mesh held aloft by a series of 43 metal pylons including two pylons 70 feet high. The supports of the new aviary are secured with 36-inch anchors sunk 20 feet underground. The new aviary was designed to survive a Category II hurricane, or winds from 96-110 mph. Andrew was considered a Category IV or V hurricane with winds from 131-155 mph.



Remains of *Wings of Asia* Aviary following Hurricane Andrew in 1992. Approximately 100 birds were never found. Many more were killed by the force of the storm. Not all avian theropod dinosaurs have a half-moon-shaped wrist bone (semi-lunate

Along with its new construction, the *Wings of Asia* also opened with a new educational twist—the story is that today's birds are living dinosaurs. Recent fossil evidence of feathered dinosaur specimens from China and Mongolia provided scientists with information to indicate that modern birds descended from dinosaurs. A half-moon shaped wrist bone is evidence that birds are dinosaurs. By looking at fossilized bones, scientists can see how the arm and finger bones of avian theropod dinosaurs have adapted to support their feathers and

carpal); only a group called *Maniraptora* do. Scientists still don't know why *Maniraptora* has this specialized wrist bone, but for modern birds, it is essential for flight.

Throughout the aviary entry plaza, shaded story pavilions weave the story of evolution. A Field Research Camp provides visitors the opportunity to view and touch realistic casts of dinosaur fossils and bird skeletons, to view a film showing the link between dinosaurs and birds, and to make up their own stories with bird puppets. Children of all ages can search for the skeleton of a 40-foot long carnivorous dinosaur in a mock fossil excavation pit. The hard, caked-mud plaza – that is really Shotcrete™ – has trapped the footprints of dinosaurs and plant leaves.



The new *Wings of Asia* Aviary covers 2.6 acres and exhibits approximately 400 birds from 70 species.

“Our goal is for visitors to gain a better appreciation for birds, their diversity and their incredibly ancient origins,” said Elizabeth Koncza, Deputy Director of the Zoological Society of Florida and head of Metrozoo’s Education Department. “Our hope is that young minds will begin to ask critical questions and to seek answers. If a visitor leaves the exhibit puzzled and heads straight to the library, our goal to inspire our visitors with a hunger for science and a love of nature will have been achieved.”

An Asian temple offers hands-on interactive learning experiences about the features and characteristics of modern birds, including a film that shows the evolution of dinosaurs. The temple features underwater viewing, picturesque waterfalls and a gift shop. Both birds in free flight and swimming ducks and fish may be observed in comfort from inside the air-conditioned building, or from a ledge behind two waterfalls. Five waterfalls flow into a 55,000-gallon aquarium and marsh that can best be seen from the 180- square-foot viewing area within the temple.

Miami Metrozoo has always had an active avian conservation program. The former aviary produced nine first-captive hatchlings and received seven AVY awards from the American Federation of Aviculture for captive breeding of species facing declining habitats. The American Bankers Family Aviary, *Wings of Asia*, will continue to participate in wildlife conservation breeding initiatives



The educational component of the new aviary explains the evolutionary connection between birds and dinosaurs.

including the AZA's Species Survival Plan Program. "We are designing a habitat that will provide an exciting visitor experience and at the same time provide the birds a comfortable home suitable for breeding and conservation programs, explained Jeff Sailer, Curator of Birds at Metrozoo.

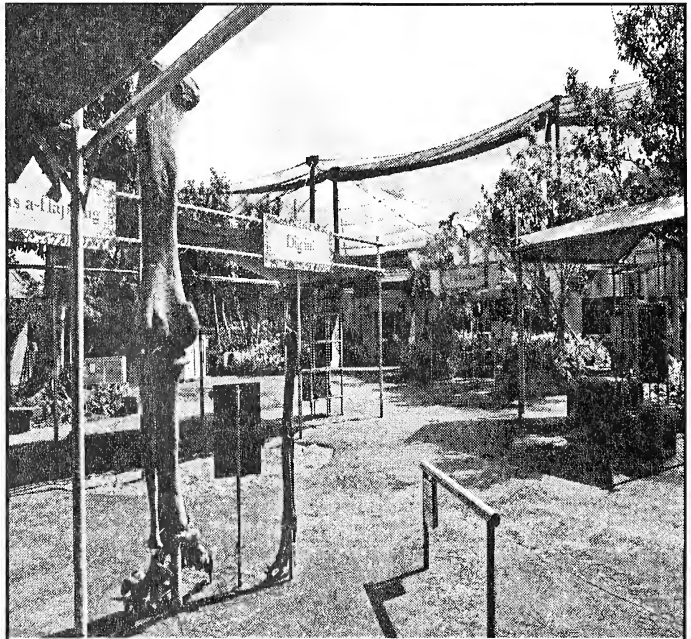
Sources: *Miami Metro Zoo News Release of 4/21/03*; *The South Florida Business Journal 4/21/03*; American Bankers Family Aviary, Wings of Asia, promotional materials. Photos provided by Ron Magill, Director of Communications and Goodwill Ambassador for Miami Metrozoo.



A dinosaur model helps visitors understand the relationship between birds and the ancient reptiles.

The entry plaza for the *Wings of Asia* Aviary features a Field Research Camp, models of dinosaur leg bones and a mock fossil excavation pit where children can "dig" for dinosaur fossils.

All photos by Ron Magill



"FIRST CLASS" FUNDRAISING

By
Kim Shotola
Houston Zoo, Inc.
Children's Zoo Supervisor
GHCAAZK Secretary



Postage stamps are a routine part of sending mail, but did you ever consider acquiring stamps for a fundraiser? Most people do not realize the tremendous diversity of topics featured on postage stamps. The animal kingdom alone is mind boggling. Each stamp is a unique part of history and a miniature work of art, some images even feature actual paintings and photographs.

There has been remarkable success featuring animal stamps in silent auctions for various animal related organizations, including our AAZK chapter. For such a small investment, the return can be quite rewarding. What makes the stamps so desirable? The fact that very few stamp shops exist, even in large populated cities, and local stores do not normally carry philatelic (stamp related) merchandise. Not to mention that when most people think of collectibles, stamps usually do not come to mind.

Stamp Presentation

There are several recommended ways stamps can be presented at a silent auction: a single stamp, multiple stamps (which can be a group of individual stamps or a sheet or sheetlet, a group of stamps that were issued together), and a stamp or multiple stamps accompanied with an animal paw print or painting created by an animal. The latter should bring the largest profit, especially if the paw print or painting is an original. There are also first day covers (FDC) which are stamped envelopes that feature a design usually on the left hand side, called a cachet. Many times the cachet relates to the stamp, such as a scene of elephants along with an elephant stamp. There are many beautiful wildlife covers, such as those issued by the World Wildlife Fund.

Stamp Handling

The use of stamp tongs is recommended when handling stamps. This instrument is similar to tweezers but with smooth edges and will prevent any residue from your hands damaging the stamps. The tongs cost around \$5-\$7 and can be purchased from most stamp supply dealers.

Mounting

To protect and enhance the appearance of the stamps and sheets, you can purchase a product called a mount. Showgard mounts come in strips that are 215mm-264mm long and are selected based on the stamp or sheetlet height of 20mm-198mm. The stamp or sheet slides easily into the mount, then the mount is trimmed to fit lengthwise. This product offers a clear view of the stamp behind a protective cover. The back of the mount has an adhesive and can be moistened or if preferred, glued to the background.

Showgard mounts are available in packets of 5-25 strips, depending on the size, with packets ranging from \$5.85-\$10.75. A good source for mounts with a detailed website is Championship Stamp Supply (www.seriousstamps.com). To find other places that sell supplies, do an internet search for stamp supplies.

While mounts offer a more professional appearance, a stamp or sheet can also be placed in a frame without one. However, if doing multiple, individual stamps, it is hard to keep them in place if they are loose.

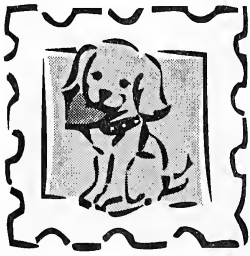
Backgrounds

The background to apply the stamps or covers to can be very simple and inexpensive. Construction paper works well and is available in vibrant, complimentary colors, for about \$2-\$3 for 50, 9 1/2" x 12" sheets. For something heavier, use card stock, which costs around \$6 for 150 color 8 1/2" x 11" sheets. Never adhere the stamp or sheet directly to the background as the value greatly decreases.

Framing & Matting

A single stamp looks best when presented in a small frame. Multiple stamps and sheetlets can be framed, with or without a mat. If the paw print or painting is small, it can be framed with a single stamp, with or without a mat. For larger ones, it is preferable to frame with several stamps, with matting an option depending on the size. Please note if the auction is held outdoors, framed items work best as the humidity can cause the matted-only items to warp.

Mats can be found at local hobby stores in a variety of sizes and colors from around \$1-\$5. Many dollar type stores carry an assortment of metal and wooden frames, complete with glass, for only \$1-\$3.



Stamp Dealers

If you are fortunate enough to have a stamp shop near you, that is wonderful. Since most people do not, they will have to look elsewhere. Topical stamps can be found on auction websites such as Ebay (www.ebay.com) and Amazon (<http://s1.amazon.com>). For optimal results when searching auction websites, try a variety of description variations such as "wolf stamp", "wolf stamps", "wolves stamp" and "wolves stamps". Recommended dealers that sell quality worldwide stamps, covers, and supplies are:

Cool Stamps (www.coolstamps.com) USA-stamps & supplies

Topical Stamps (www.topicalstamps.com) USA-stamps, covers & supplies

Stampville (www.stampville.com) USA-stamps

Timbre Themes, Inc. (www.topicstamps.com) Canada-stamps & covers

Deborah Lingen (www.stamptopics.com) Canada-covers

These websites also have search capabilities and provide images of all their stamps and covers. These dealers mostly sell unused stamps-stamps that are in mint condition, not hinged and without postmarks or cancellation marks. "MNH" means mint not hinged. Hinging is where a piece of tape made specifically for stamps is placed on the back of the stamp in order to adhere it. Other dealers can be found by doing an internet search for topical stamps or first day covers.

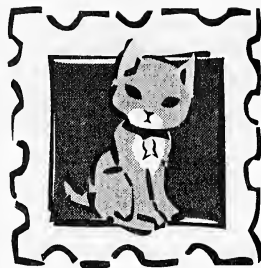
Unused stamps are generally more expensive than used stamps. An unused animal stamp can cost anywhere from .10 to several dollars. Most countries issued sets of animal stamps which range from \$1-\$10+.

Used stamps of a specific topic, such as wild animals, are frequently sold in packets containing 20-500 stamps. This is a less expensive approach with a typical packet of 200 costing \$8.99-\$12.99. The disadvantages are you are not able to see images of the stamps due to the quantity, and in some cases the used stamps are not in as ideal condition as the unused stamps.

One recommended dealer of quality used stamp packets is Thomas Stamps. Thomas does not have a website but can be reached at itsung@sprint.ca (Canada). He also offers auctions on Ebay and Amazon of used and unused stamps. Other dealers can be found by doing an internet search for topical stamp packets.

Stamp Shows

Another possible source of stamps is a local stamp show. Search for shows near your area by looking at "Local Clubs" at the website of the American Philatelic Society at www.stamps.org. Most shows are held at hotels and offer stamps, covers, and some supplies. Not all dealers offer stamps arranged by topic, though. Many sort based on country, so inquire about the topical dealers when you arrive. The APS also has a large website stamp shop with around 200,000 items but membership is required to purchase their items.



Postal Services

The postal services of some countries have on-line postal shops where the stamps they have issued can be purchased, such as USA (www.usps.com), Canada (www.canadapost.ca), Australia (www.auspost.com.au) and New Zealand (www.nzstamps.co.nz). USA and Canada also issue periodic publications of their stamps. To find others, do an internet search for the postal services of particular countries.

Handbooks

Visit the American Topical Association at <http://home.prcn.org/~pauld/ata> to purchase stamp handbooks on Insects, Fish, Bats, Horses, Birds & Mammals. Each handbook lists all known stamps on that topic at the time the book was published. The stamp information includes the country, year issued, description and catalog number. This information would be very helpful if you wanted to search for specific stamps from dealers that arrange their stamps based only on the country. The handbooks cost \$5-\$17 for non-members with a discount given to members.

Pricing

The starting price of the stamps should be several dollars more than the actual cost. For the items with paw prints or paintings, depending on the size and if matted and/or framed, a good starting price is \$5-\$20. If a value needs to be listed on the auction form, simply put "priceless". It is a good idea to state on the form that the bids must be made in dollar amounts. This will avoid an increment increase of only .25.

Offering stamps in silent auctions can be an exciting and profitable venture. If I can be of any further assistance, please do not hesitate to contact me at kshotola@houstonzoo.org or 713-533-6645.

Three Types of Data Transfer Forms Available from AAZK

Just a reminder that three different types of data transfer forms are available to requesting institutions from AAZK at no charge. These forms are designed to be used whenever an animal is shipped from one facility to another so that important information on that animal can be passed on to the receiving keeper and veterinary staffs.

The following forms are available by contacting Barbara Manspeaker at 1-800-242-4519 (U.S.) and 1-800-468-1966 (Canada), or by emailing your request to aazkoffice@zk.kscoxml.com< They will soon be available in PDF format at the AAZK website (www.aazk.org).

- Animal Data Transfer Form (ADTForm) - includes information on diet, reproductive history, general medical history/physical conditions, and enclosure/maintenance data on animal(s) being shipped.
- Enrichment Data Transfer Form (EDTForm) - includes information on behavioral history, enrichment currently used and how implemented (food, exhibit, artificial, etc.), safety concerns for animal(s) being shipped.
- Operant Conditioning Data Transfer Form (OCDTForm) - includes general background information, training specifications, training schedule, behaviors trained and methods used for animal(s) being shipped.

These forms are provided free of charge as a professional courtesy of AAZK, Inc. We encourage all zoos, aquaria and other animal care facilities to adopt the use of these forms when shipping animals. We extend our thanks to the following institutions for assisting in the printing expenses for these forms: Columbus Zoo (ADTForm), Arizona-Sonorora Desert Museum (EDTForm), and Disney's Animal Kingdom (OCDTForm).

The Water Column

By

*Dan Conklin, Senior Biologist, Florida Aquarium
Bruce Elkins, Curator of Waters, Indianapolis Zoo
Kevin Shelton, Associate Curator, Florida Aquarium*

Sizing Filtration System Components: Some considerations

The last two months we dealt with determining the volume of your systems, so this month I would like to talk about choosing the correct sizes for the various filtration system components. Most of the decision you need to make here are based on multiple factors not the least of which will be expense. But since most people will have very different financial situations, (other than never enough) I am going to pass on addressing those. Instead, I will dwell on the mechanical and biological aspects.

There are a few considerations that will be used when sizing any type of filter component.

1. The primary of these is the total volume of the system. Obviously, you don't want to try to filter a 2000-gallon tank using only power heads (ok, someone might... but they sure would need a bunch of them...). Conversely, a 1 1/2 horse power pump might be a little aggressive on a 20-gallon holding tank.
2. Second consideration will be the desired flow rate of the system. How often do you want the water in the system to pass through the filtration system? In general, I try to shoot for 5 to 6 xs per hour on a fish only system. Invertebrate tanks will be higher.
3. Third, what will be the biological load on the system? In other words how much life will it be holding? The more life you have in the system the larger the filtration system will need to be.
4. Lastly, remember that all parts of a filtration system interact with one another. You can't put a chiller designed to carry 100 gallons per hour on a system designed to carry 500 gallons per hour, unless you side stream the chiller. (More on "side streaming" later.)

The heart of any filtration system is the pump. Now, in simple systems the pump may be nothing more than an airlift, but there are several things to consider when sizing airlifts. Airlift diameter, air flow rate and bubble size all are variables in determining the pumping capacity of an airlift. So, you need to figure the amount of water the airlift will need to pump and then use the above factors to design the airlift. For mechanical pumps; flow rates, total volume, and head pressure need to be taken into account. Head pressure is the amount of vertical lift the water will have to be pumped. Head pressure will reduce the total amount a pump can deliver, and is on a descending scale. The more head pressure the less the pump will pump. Almost all pump manufacturers will have this information available in graph form for their pump models. For example you have a 200-gallon tank and you want to turn the water over five times per hour. You will need at least a pump with a 1000 gal/hour (gph) capacity. But you also need to mount the pump three feet beneath the tank. From the fictitious manufacturer's graph we find that a 1/10 hp pump will pump 1000 gph at 0ft head and only 900 gph at 3ft of head. Since you want 1000 gph you will have to get the next larger pump. Interestingly, a slightly larger pump, not working as hard, may even save you money in electricity and service. (I know... we weren't going to talk about money...)

Protein Skimmers or Foam Fractionators are generally sized by the total volume of the system they will be treating. Flow rate is important in the respect of not exceeding the design capacity of the unit you purchase. If the main filtration line has a higher flow rate than the capacity of the skimmer, the skimmer can be "side streamed". Side streaming is the process of diverting only part of the

filtration flow to a component, rather than forcing the entire flow through the unit. This is generally accomplished by plumbing in a diverting valve and line supplying the skimmer and then returning the water back to the main filtration line. Protein skimmers are also manufactured that have their own pump serving as the supply. Water can therefore be pulled straight from the exhibit or a sump if you have one, and returned back. This is a simpler method of side streaming since it is still not carrying the full filtration water flow.

Chillers are sized by the volume of water, normal operating water temperature, and desired drop in temperature. Most suppliers will list the capacity of their units based on these numbers. For example: Your 200-gallon tank is running at 75° and you need it to run at 55° or a 20 degree drop. You will also have to pay attention to the total flow capacity of the unit. It may not be equipped to handle the entire filtration flow. Chillers are another piece of hardware that can be side streamed and work very well. Most will come with a remote temperature controller so if you side stream the chiller make sure the temperature sensing probe is in the main tank. This way you are not getting a false reading out of a sump or filter line.

One of the most difficult components to size is the UV sterilizer. I also do not recommend side streaming UV sterilizers. UV sterilization works by exposing organisms in the water stream to killing doses of ultraviolet light. The killing exposure is based on length of time exposed, distance from light source, and type of organism you are targeting. One of the most thorough discussion I have found is in the book "Aquatic Systems Engineering: Devices and How They Function" by P. R. Escobal., available from Aquatic Ecosystems [1-877-347-4788]. I highly recommend reading this one. It is very comprehensive and is not light reading material, but very worth the effort.

In general to size a UV sterilizer, you will first need to determine your filtration flow rate. The UV unit you purchase needs to have the capacity to carry 100% of the flow for the most effective treatment. I mentioned turnover times earlier as the number of times the total water volume will pass through a filter system in a set amount of time. Well the reality is that you will never get 100% of the water in a system to pass through a filter, since you are returning the water back into the same tank as the source, i.e. you get continual mixing. Side streaming makes this situation even worse by reducing the amount of water exchange. Since UV sterilizers must be in contact with the water to disinfect it, the more contact the better the results (assuming the unit is sized properly) hence I don't recommend side streaming for UV units.

Once you have found a unit large enough for the flow rate and volume of your tank, you need to make sure it will have the exposure time, frequently called "zap dosage" to kill the organisms you wish to remove. There are numerous charts listing organisms and zap dosages, measured in sec/cm², including one in the book I recommended. The mathematics to determine dosage in a peculiar UV sterilizer and system are very complex, but, here again, the manufacturers come to the rescue. Most will already have the information calculated for you. They really do want you to buy their equipment... If the manufacturer you choose does not have that information available... find another manufacturer. It will take you some time to determine you have the proper size UV sterilizer but it is necessary. UV units are not cheap and having the wrong sized unit will be a waste of money. (There I go on money again!)

References:

- Moe, Martin A. 1989. *The Marine Aquarium Reference: Systems and Invertebrates*. Green Turtle Publications. Plantation, FL 507 pp.
Escobal, Pedro R. 1996. *Aquatic Systems Engineering: Devices and How They Function*. Dimension Engineering Press. Oxnard, CA 206pp.

A quick reminder: The authors of the Water Column are always willing to answer any questions you might have. They can be about filtration systems, water chemistry, or aquatic life. If we don't know, we will find out for you! We also welcome feedback from readers about previously published columns. Questions and comments may be submitted to us by email at:

Dan: dconklin@flaquarium.org/
Kevin: kshelton@flaquarium.org/
Bruce: belkins@indyzoo.com/

Or by mail at: Kevin Shelton, The Florida Aquarium, 701 Channelside Drive, Tampa, FL 33602.

Legislative Update

Compiled by Georgann Johnston
Legislative Advisor
Sacramento, CA



State Fish and Wildlife Agencies to Share in More Than \$478M in Federal Funds

State fish and wildlife agencies will share more than \$478 million in excise taxes paid by America's hunters, anglers and boaters. The agencies will use the money for fish and wildlife conservation by acquiring land, improving habitat, and conducting research, education, and other programs. The funds will also help pay for hunter safety and aquatic education and fish and wildlife-related recreation projects. The funds are apportioned under two Federal Aid programs administered by the Interior Department's U.S. Fish and Wildlife Service.

"Anglers and hunters have been the leading force for conservation in America," said Steve Williams, USFWS Director, in a speech given on 5 May 2003. "By supporting these excise taxes, they are contributing critical funds for maintaining and restoring our fish and wildlife resources." The wildlife restoration apportionment for 2003 totals \$213 million, with \$39 million apportioned for hunter education. The apportionment for sport fish restoration for 2003 totals more than \$265 million. The Federal Aid in Wildlife Restoration Act (Pittman-Robertson Act), enacted in 1937, and the Federal Aid in Sport Fish Restoration Act (Dingell-Johnson Act), enacted in 1950, collectively have raised more than \$8.5 billion.

Wildlife Restoration Program funds are made available based on land area (plus inland waters such as lakes and large rivers) and the number of hunting license holders in each state. Distribution of hunter education funds is based on the relative population of each state. The Service distributes sport fish restoration funds to the states based on the land and water area (land plus inland water, the Great Lakes and marine coastal areas) and the number of fishing license holders in each state. Federal Aid funds pay for up to 75% of the cost of each project while the states contribute at least 25%.

The Wildlife Restoration Program money is derived from an 11% excise tax on sporting arms and ammunition, a 10% tax on pistols and revolvers, and an 11% tax on certain archery equipment. Half of the tax on handguns and archery equipment is made available for state hunter education and safety programs. States use Wildlife Restoration Program funds to manage wildlife populations, habitat, research, surveys and inventories and to fund hunter education.

The Sport Fish Restoration funding results from a 10% excise tax on fishing equipment and a 3% tax on electric trolling motors and sonar fish finders. The Wallop-Breaux legislation of 1984 increased the tax base for sport fish restoration to include a portion of the federal fuels tax and import duties on fishing tackle and pleasure boats. States use Sport Fish Restoration Program funds to stock fish; acquire and improve sport fish habitat; provide aquatic resource education opportunities; conduct fisheries research; and build boat ramps, fishing piers, and other facilities necessary to provide recreational boating access. *Source: USFWS Press Release 5 May 2003*

USFWS Releases Revised Environmental Assessment on Peregrine Falcon Take

The U.S. Fish and Wildlife Service has just released a Draft Revised Environmental Assessment on take of nestling American peregrine falcons in the United States for use in falconry. In April 2001, the Service completed an earlier assessment of the issue, with a preferred alternative allowing take of up to 5% of the nestlings for falconry. At that time, the Service concluded that such take would have no discernible effect on the population.

In February 2002 the Service was informed of a possible error in the assessment. The Service reviewed the models, and determined that age at reproduction in them was inadvertently set at age two, rather than age three as intended. To correct this issue, to use more current population data for the western States, and to make the effects of the alternatives considered easier to understand, the Service has produced the Draft Revised Environment Assessment, Management Plan, and Implementation Guidance. Also, corrected modeling and evaluation of current American peregrine falcon population

data in the western United States indicated that the adult mortality figure used for comparisons in the original Environmental Assessment was too high.

In the Draft Revised Environmental Assessment, the Service considered six alternatives for take of nestling American peregrine falcons in the western United States and Alaska. The alternatives considered were no action, which would mean no take; take of 5, 10, 15, and 20% of annual production; and no restrictions on take beyond the existing falconry regulations. Modeling indicated that the population would continue to grow if take of as much as 20% of the nestlings produced were allowed.

In the draft revised environmental assessment, the Service's preferred alternative is to allow take of up to 5% of the American peregrine falcon nestlings produced in the States west of 100E longitude, at the discretion of each State. Based on data provided by the States that show considerable American peregrine falcon population growth in the west since delisting from the Endangered Species Act, the Service believes that the 5% level of take is more conservative than previously believed. Copies of the assessment are available from the Service's Division of Migratory Bird Management online at <http://migratorybirds.fws.gov>. Source: *USFWS Press Release 8 May 2003 Indian State Bans Meat in Wildlife Sanctuaries*

Indian State Bans Non-Vegetarian Food in Sanctuaries

The government of the Indian state of Orissa recently banned cooking and eating non-vegetarian food in 18 wildlife sanctuaries in order to counter poaching. Violators of the ban are subject to very substantial fines.

The state had banned non-vegetarian food items in Bhitarkanika National Park last year and now the government has extended the ban to all other sanctuaries in the state. In addition, the government has ordered all vehicles in which meat is being transported to be turned away at entrances to the sanctuaries. The ban was prompted by the killing of two deer by Bhitarkanika National Park rangers in response to a request for venison from 12 visiting members of the Orissa State Assembly. Source: *Animal News Center: Reporting the News from the World of Animals, www.anc.org, 8 May 2003*

USFWS to Reconsider Status of Two Threatened Bird Species

In anticipation of the settlement of a timber industry lawsuit, the USFWS recently announced that it would review whether the northern spotted owl and marbled murrelet should stay on the threatened species list, where they are considered a roadblock to logging. U.S. District Judge Ann Ailen in Eugene, Oregon has yet to sign off on the settlement reached by the American Forest Resource Council, the Western Council of Industrial Workers, and USFWS, but the agency needs to get started to finish the review by the end of the year, said Joan Jewett, a spokeswoman for the government.

Critics of the situation claim that the lawsuit, brought by timber industry representatives, was an attempt to get a more favorable view of the science of endangered species protection than they were able to obtain from prior administrations. The new review of scientific literature and public comments - there will be no new field studies - will cost \$700,000 according to Jewett. The settlement also includes a review of critical habitat for the birds. That will not start until 2006 because of budgetary considerations, Jewett said. Furthermore, the USFWS has also said it may run out of money budgeted for species listing and critical habitat designations by the end of June 2003 if it has to meet all of its court ordered deadlines. Source: *Salem Statesman Journal Newspaper 22 April 2003*

USFWS Unable to Authorize "Take" for the Florida Manatee Under the MMPA

The USFWS recently announced that it is unable to authorize the incidental, unintentional "take" of a small number of manatees under the Marine Mammal Protection Act (MMPA). Thus, the Service withdrew a November 2002 MMPA Proposed Rule to authorize the incidental take of Florida manatees. The decision was based on comments received by the USFWS, which provided new information raising significant concerns about the impact on the four stocks of Florida manatees.

The Service announced that it carefully considered information provided by researchers, scientists, government agencies and stakeholders which called into question some of the Service's standards, information and analyses used to develop the proposed regulations, as well as the need to refine and peer review the population modeling methodologies. Over 8,000 comments were received from these various sources during the course of the rulemaking process.

In addition to withdrawing the Proposed Rule, the Service also rescinded the Director's Consultation Procedures Memorandum of 22 January 2003. The Service will continue to follow previously established regulations and policies to ensure that any project that might affect manatees are thoroughly reviewed, while at the same time ensuring projects where take is not reasonably certain to occur are not unnecessarily delayed.

A spokesperson for the USFWS, Richard Hamilton, stated that the "No Action" alternative does not mean a roll back in manatee conservation and recovery efforts, nor does it mean the Service will impose a state-wide moratorium on water-access facility permit reviews. In fact, he said that the opposite is true. In the absence of MMPA Incidental Take Regulations, the Service will continue to review each project which may affect manatees on a case-by-case basis to ensure those projects are not reasonable certain to result in the taking of those animals. In the interim, the Service will continue to frequently monitor manatee distribution, mortality, and demographic data, as well as changes in ongoing manatee protection programs and use this information in any future action.

Source: *USFWS Press Release 5 May 2003*

Tide Turns Against Manatees/Death Toll from Boats Continues

In the last two months, about 60 or 2% of Florida's manatees have been killed by a deadly algae bloom along the southwest coast says MSNBC News, *Reuters*. This is the largest die-off of manatees attributed to the toxic "red tide," since 1996 when 149 died in a six week period in 1996. The algae produce a toxin which impairs coordination and causes paralysis, but reports indicate that at least two manatees survived because people held their heads above water as they recovered from the effects of the paralysis and four other were being treated at marine sanctuaries.

In a related item, a new report from the USFWS Patuxent Wildlife Research Center finds that manatees "cannot sustain the increasing death toll exacted yearly by boats and personal watercraft in much of Florida" reports the *Bradenton Herald*. "Already facing population losses due to slow reproductive rates," the reports warns that "in the absence of any new management action," that reduces increasing mortality from speed boats, manatees in the state face a "dire" situation, "with no chance of meeting recovery criteria within 100 years." Sources: *GREENlines Issue #1852 4/28/03 and #1856 5-2-03*

Condor Matriarch Killer Charged

A California man has been charged with the February shooting of Adult Condor 8, described as the matriarch of efforts to recover the California condor says the San Jose Mercury News, AP 4/29. Wild born AC-8, was "the last female of the species caught for an intensive breeding program to save the giant vulture from extinction," and was one of the first of the wild birds to be released back into the wild after hatching dozens of eggs in captivity. Source: *GREENlines Issue #1856 5-2-03*

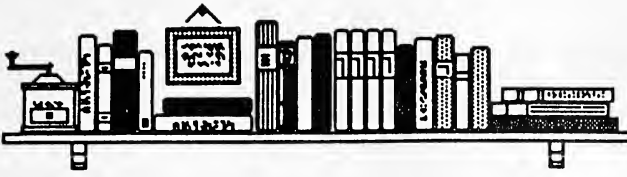
Zoos Forgo Wild Elephant Import for Now

The San Diego and Tampa Bay Zoos, concerned over a lawsuit brought by animal rights and conservation groups, have temporarily surrendered "permits granted by the USFWS to import 11 African elephants after the agency discovered discrepancies on their permit applications" says *Planet Ark*, *Reuters* 5/1. According to the USFWS "the zoos misrepresented where and how the elephants were captured" but the zoos expect the elephant import will only be delayed while they apply for new permits.

At issue is whether the elephants were captured in the game reserve specified in the zoos' permit. The animal rights groups, citing sources in Swaziland, say the elephants were taken from a neighboring reserve. The zoos have said the permit included that reserve. If they come, the elephants would be the first legally imported from Africa to a United States zoo in about 20 years. Source: *GREENlines Issue #1860 5-8-03*

Ivory Sales Risky Business

Conservationists warn that a CITES approved sale of confiscated ivory stockpiles in three African countries "risk a poaching spree" and "could drive elephants to extinction in some countries within 20 years" says *BBC News*. The International Fund for Animal Welfare charges that "safeguards planned to ensure the sales do not fuel the demand for ivory will not work" and that CITES, protective criteria for allowing the sales to proceed "simply cannot be met." Source: *GREENlines Issue #1859 5-7-03*



Book Review

The Whale's Journey

By Stephen Martin

ISBN - 1865082325

2001 - Allen & Unwin

83 Alexander St, Crows Nest, New South Wales, Australia

www.allenandunwin.com

251 pp, illustrations and index - \$ 29.95 AUD

*Reviewed by Sasha Nelson, BA, MSc
Graduate Student, Centre for the Public
Awareness of Science at The Australian
National University, Canberra, Australia*

Whaling in the name of research still occurs today. If Japan, Norway and other pro-whaling lobbyist have their way the ocean's waters will again flow red with whale blood. *The Whales' Journey* by Stephen Martin plunges the reader into the stark reality of the history of whaling.

For those of us born into a world where most nations oppose commercial whale hunting it is hard to imagine what it must have been like during the days when whalers roamed the waves looking for their prey. In fact, with conflicting reports of the relative health and abundance of many whale species, the romantic tales of Moby Dick, and a strong pro-whaler lobby developing it would be all too easy to abandon current laws in favor of legalizing hunting. Reading Martin's book is a good wake-up call for anyone who doubts the rationale in whaling bans.

Confronting and compelling this book was not comfortable reading; however, the message – to remember the battle to preserve wildlife is ongoing – is so important as to make this book compulsory reading. Martin is adept at reinforcing current social morays against whaling. The graphic details and stark realities of whaling cannot be ignored even by readers with no first hand experience of the days of whaling. I found the book disturbing and lacking continuity that could have been provided with a more narrative less commentary style.

The Central Park Zoo

One of the "Images of America" series

By Joan Scheier 2002

ISBN# 0-385-1100-5

Arcadia Publishing, 2a Cumberland St., Charleston, SC 29401

Soft Cover. 128 pgs. 200 photos \$19.95 (US)

*Reviewed by Phil King, Zoo Foreman
Assiniboine Park Zoo, Winnipeg, MB, Canada*

I have visited the Central Park Zoo twice; once in 1967 and again in 1979, and so have not seen it in its latest reincarnation. As a person interested in zoo history, I was frustrated both times because no information about the zoo was available which I could take away with me; presumably the City of New York Parks Department thought it an unnecessary provision. This book fills a large part of that vacuum, and I am grateful for the opportunity to review it here.

It is primarily a photographic essay but includes lengthy yet sympathetic captions to virtually all of the nearly 200 photographs which the author has gleaned from a remarkable numbr of sources including, it seems, her own collection. The conciseness and orderly presentation is testament to

the fact that she is a former librarian and currently a guide at the zoo. It also becomes quite apparent that she is genuinely fond of the institution, both as it was and as it is now. This is an important point because frequently books of this type set out to denigrate the early history of older zoos, particularly when some of the illustrations feature...(horror of horror)...BARS! My colleague Ken Kawata has written some detailed and typically fine articles on the subject of older zoos and the frequent disrespect for, or worse - ignorance of - zoological garden history, and has done a far better job of it than I could ever hope to, so I won't blemish the topic by expounding on it. I will, however, mention that I am reminded of a zoo facility still extant, which was roundly criticized by a zoo inspection team as being unsuitable simply because it involved the (necessary) use of bars which were visible to the public, but was in all other respects perfectly satisfactory. Joan Scheier incorporates no such tosh in her writings, offering descriptive comments and information, such as "Babies were born in the zoo and did well", and "The outdoor area was not only spacious but had soft sand on the floor of the enclosure, an important consideration for hooved animals."

My first visit to this zoo, not long after I had landed on this continent, left me with memories of a collection of animals housed very much in the older style, but impressively and unexpectedly large in scope. For a zoo of such small acreage (just under 5.5 acres, in fact) to exhibit the number of large mammals that they did, as well as a goodly variety of smaller ones and a separate bird house to boot was a most unexpected experience. I don't remember being offended or disappointed (as some had said I would be), just impressed. Sadly, on my next visit the bird house has been evacuated of its residents and was transformed into a changing room for people working on expansions or repairs to the subway system, so my memories of it in its original form are distinctly less clear than those of the remainder of the zoo. It is also the first place I saw one of the now-popular penny-pressing machines, strapped to the chest of a man who charged 25 cents to turn your penny into a souvenir of Central Park. Not the zoo, mind you, but the park. But none of this has much relevance in a book review except to illustrate a couple of very lasting memories for me, a visitor to a place which obviously left countless such memories in the minds of those who visited regularly. It was a very atmospheric place.

It should be made clear that this book cannot be regarded as a history of the Central Park Zoo because of the format of providing text only to accompany photographs. It should perhaps be regarded as an introduction to the zoo's history, or as a complementary volume to it. While each of the three developmental periods is covered, the largest selection of photographs deals with the Works Progress Administration zoo (1934-1984) and is the biggest compilation of such photographs that I have seen. Most of these are remarkably clear, and the selections include many references to the characteristic architectural details deemed important at the time, and the interesting revelation that the entire zoo was built and reopened in 10 months! What a tribute to the WPA program and the skills and craftsmanship of the builders.

The initial phase of the zoo (1860-1934) is provided with the least coverage, predictably enough, although a surprisingly large number of views is assembled, again with informative captions. The current phase, which took four years to build and opened in 1988, is dealt with the least, and perhaps this is as it should be. The transformation of the zoo into one that matches today's standards of naturalistic design, while incorporating valuable (both monetarily and psychologically) remnants of the zoo's history cannot have been easy, and the W.C.S. must be commended for maintaining the facility, which has given New Yorkers much comfort over so many years and continues to do so today. It is certainly befitting of one of the oldest zoos in the USA.

For those interested in the Central Park Zoo's history, this book provides a fascinating look into it. It might possibly be said that the history of this icon parallels that of other small municipal zoos, many of which have fallen by the wayside. For those not especially knowledgeable about the subject, it is well worth reading, and a good illustration of the many accomplishments to which this little zoo may lay claim. It is a wonderful little book which mixes proudly with the others in my collection, ready for quick reference when needed.

Bird Bibliographies

Jeanette T. Boylan, Ph.D.

Research Technician, Dallas Zoo, Dallas, TX

This is the second in a potential new series of bibliographies of birds. This series will continue if the editor receives positive feedback. Bibliographies are valuable resources and hopefully publishing the ones I have will avoid another keeper having to “reinvent the wheel.” The bibliographies contain articles published after 1978 and journal titles are not abbreviated because full journal titles are required by most Inter-Library Loan services. I also added translations and language for foreign articles, and the species discussed if the name was not in the article title. Special thanks to all who helped with the bibliography, especially with translations.

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Current as of March 2003

(Editor's Note: Dr. Boylan has been very kind to share her bibliography research with the readers of AKF. Let us hear from you if you find the publication of these bibliographies useful to you in your professional work. Email me at akfeditor@zk.ksoxmail.com< >)

Enrichment of African Black-Footed Penguins at the New Jersey State Aquarium

By Kristine Demark, Biologist II/ Birds and Mammals
New Jersey State Aquarium, Camden, NJ

The New Jersey State Aquarium has a colony of 19 African Penguins (*Spheniscus demersus*). The exhibit consists of a 17,000-gallon fresh water pool that ranges in depth from 2-8 feet (.6-2.4m) and has underwater viewing. Along the water, there is a concrete rocky beach with nesting boxes. In 2001, a new enrichment program was integrated into the daily routine. Originally, the enrichment consisted of an object list of over 35 items. The trainer would pick an object for enrichment and place it in the water, on deck, or at the underwater viewing area. This would take place everyday at 1130hrs during a public demonstration. It was quickly noticed that the penguins and keepers had a few favorite items that were used repeatedly. Additionally, over a period of time, the penguins' activity level decreased at this time of day.

Before starting the new enrichment program, the staff discussed other enrichment ideas and categories. Two goals were set for the penguin enrichment program. The goals are as follows:

- 1) To encourage activity and interaction of the penguins with objects, surroundings, the public and each other during enrichment sessions.
- 2) To increase the bond between the colony and the training staff for husbandry training.

The first goal is typical of most enrichment programs. After watching many sessions, it was apparent that the penguins were only interested in toys with mirrors or those that could be used as nesting material. Changes were made to the enrichment inventory. Many objects that repeatedly yielded no response were eliminated from the enrichment program. Other types of enrichment were introduced to encourage the penguins to exhibit natural behaviors, such as chasing and nesting.

After consideration of our goal, various types of enrichment ideas were developed and classified into the following categories; chasing/visual, nesting, audio, food toys, and bonding. The descriptions and examples of each category are as follows:

Chasing and/or visual – Visual objects promoting investigation and chasing. Some examples are shadows, pictures, bubbles, crickets, mirrors on deck and at the underwater window.

Nesting – Objects that can be gathered and promote nesting and breeding behavior. Examples of these are grass clippings, rocks, corn husks, seaweed, toy links, and pieces of hosing. All objects are inspected for safety by the training staff and the veterinarians.

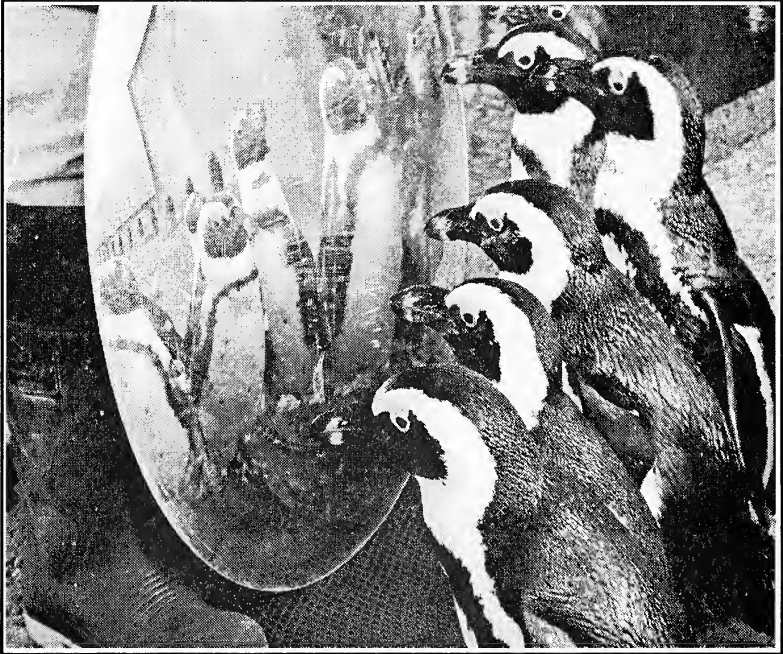
Audio – Tapes of braying, bird noises, various animal calls, and music (classical, bagpipe, instrumental, etc.).

Food Toys – Fish frozen in ice and balls stuffed with fish.

Bonding – Enrichment that promotes handling, preening and bonding between the trainer and the colony of penguins. The trainer sits out on deck near a few penguins until they come over to investigate.

Every month a schedule is created that incorporates all five categories of enrichment. Enrichment is done three or four times a week during various times of day. The penguins are given a rating on how they react to the enrichment. The rating scale is as follows:

- 0 – no reaction
- 1 – animal approaches or reacts (vocalizes, moves away)
- 2 – animal inspects object or reacts for up to five minutes.
- 3 – animal spends more than five minutes inspecting or reacting to enrichment.



African penguins examining a mirror. (Photo by Barbara Martin)

In response to the first goal, the penguins have produced a variety of responses to the offered enrichment. For example, when they first encountered the mirror, they grouped together in one big colony, stretched their necks up and inspected the mirror from afar. This behavior continued the next several times they encountered this object. Eventually, some of the penguins began to approach and even peck at their own reflections. They have had a similar response to the auditory enrichment. The first time that bagpipe music was played they once again clumped together and then began to vocalize. Another activity that is popular with the penguins is bubble chasing. The trainers stand on deck and blow bubbles. The penguins will chase the bubbles down and try to catch them.

Additionally, we are able to increase visitor experience with the new enrichment program. The training staff requests handmade pictures from local schools and the aquarium's summer Sea Camp program. The kids create posters and pictures for the training staff to hang on the windows for the penguins to view. The children are then invited to watch the penguins see the pictures for the first time. Many penguins spend long periods of time inspecting the pictures. Additionally, the staff encourages the public to make hand shadows (from the public area) for the colony. These activities help the public feel like they are interacting with the colony.

The second goal, however, was a new approach to combining enrichment and husbandry training. Once a month the penguins' feet are checked for pododermatitis. They are also weighed during this time. This process originally involved heavy restraint, the risk of several bites and stress for the penguins and staff. Our goal was to desensitize the colony to husbandry handling by incorporating the staff's presence as part of the enrichment schedule. The basis of this enrichment was to have "bonding sessions". These bonding sessions consisted of trainers sitting with the penguins in the exhibit.

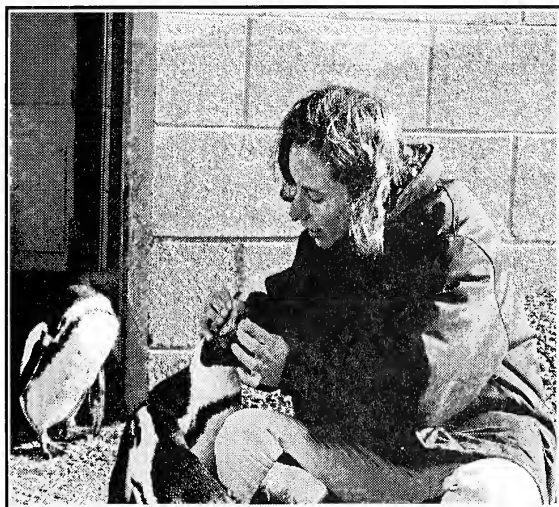


Trainer preening penguins during bonding session. (Photo by Barbara Martin)

The second goal proved to be the most reinforcing for the penguins and trainers. Prior to the new enrichment schedule, a few of the penguins had already been involved with bonding sessions.

However, there has been a dramatic increase of the population coming over to participate

in bonding session now that the number of sessions has increased. At first, only a few penguins came over to investigate. Then we were eventually able to preen and pick-up some members of the colony. Now, several penguins will run over to trainers when they come out on deck in hopes of being preened and receiving attention. Most importantly, this has aided us in training our penguins for foot and weight checks.



Trainer performing a mouth exam during a bonding session. (Photo by Barbara Martin)

The staff has noticed a significant change in the monthly foot and weight checks since the beginning of the enrichment program. Over 75% of the colony can be handled without restraint for these monthly check-ups. Also, through the bonding sessions we have been able to perform voluntary mouth exams.

In conclusion, the new enrichment program has been in effect for one year. During this time both goals were successfully achieved with little change to our daily routine and very little money. The enrichment sessions take anywhere from 10-20 minutes out of the daily routine. It is important to note that not

every type of enrichment yields a reaction. If a form of enrichment consistently yields no reaction, it will be temporarily or permanently retired from the program. We are always researching new ideas and eager to hear about other institutions' enrichment programs.

Everything I Needed to Know in Life I Learned at the Racine Zoo

*By Sarah Burgess, Intern
Racine Zoo, Racine, WI*

Between being a dorky chick that came to visit the animals 3 times a week, volunteering in the middle of winter, and interning this summer, I've been at the Racine Zoo for about a year. As my status changed, so did the lessons I learned there. You see, while I was learning proper shovel-wielding skills and where the first-aid kits were, I was also being exposed to all sorts of experiences that eventually translated themselves into valuable life lessons for me. I've tried to work these lessons into this paper in a way that captures my personal experiences this summer – and hopefully reminds the reader of a few experiences that they have come across as well.

Feces Occurs

Where did humans get the notion that we are better than anything else that walks this planet? Sure, maybe we can dream and imagine and drive cars and use cell phones and flush toilets. The rest of the animal kingdom has us more than licked in other areas. We sure wouldn't win a fight with a protective kangaroo mama who is half the size we are. I highly doubt that we could find food and water as well as a tiger during a Siberian winter. Quite frankly, I don't think that I'm any "better" than any of the animals I work with. Underneath our abilities, we're all just animals that eat and sleep and smell funny and reproduce– and defecate.

After my first half-hour at the Racine Zoo, I realized that staying clean in a zoo is virtually impossible. I saw fellow volunteers and interns diligently keeping dirt and other organic materials off of their bodies, often laying down their rakes to brush mud from their shirts with dusty hands. I, personally, gave up on staying pristine. Kicking poo off of your boots after cleaning one exhibit just leaves more sites of attachment for different kinds of poo in the next yard. It's not practical. What do you do when a goat urinates on your jeans – wring them out? The dogs don't care if I have a runny nose when its cold outside – why should I care if they're a little slobbery? Besides, I almost take pride in getting absolutely filthy by the end of the day – it shows me that I did a lot of good things for the animals and the keepers during those eight hours. I know that I can go home to a hot shower and scrub it all off.

Part of being a keeper is being humble and remembering that you are washable.

Things Die

The above would seem like an obvious statement, but I guess that you don't realize that you can't fix everything until something breaks for good.

I learned how to handle the death of a beloved friend this year by watching the keepers. Although I only knew Chippewa for a short time, I felt the zoo's loss through the staff. I saw that devotion to an animal you work with every day is a virtue and not at all unusual. An animal's death should be mourned, but should ultimately be seen as an opportunity for the betterment of the lives of the other animals in your care. This year I saw exhibits altered, diets changed, and routines reworked in a dead animal's honor.

Although I wasn't at Racine Zoo long, I did have some experience with "my" animals being ill or dying. I felt prepared to deal with these events thanks to the cues given to me by all of the keepers and their understood emotional support that may not have been mentioned, but was there all the same.

Part of being a keeper is caring for your animals while they are here and looking to the future after they are gone.

Small Children and Parents Aren't Always a Good Combination

As a small child, I loved going to the zoo, reading the signs, and learning all about the different animals. It was fascinating to me that there were actually five kinds of tigers alive and that naked pink mole rats had massive tunnel systems underground. I always figured that all kids went to the zoo for this reason.

This summer I discovered that some people go to the zoo to tease ducks, throw rocks at goats, and try to get the tigers to attack the sides of their enclosures. I'm glad to have learned early in my career that any three animals in an exhibit is a Mommy, a Daddy, and a Baby – and that only two animals means that the Baby is missing. If the lions aren't attacking something, there's something wrong with them; if the "monkeys" are doing anything, they're inferior; if the giraffes don't come when you yell at them, they're boring. It's OK to do something that you're not supposed to do until a keeper walks by. I watched as parents taught these lessons and more to their children.

Part of being a keeper is educating the public and sharing your passion for the lazy lions, the stupid monkeys, and the lame giraffes with them so that they can understand their value.

You CAN be Friends with your Coworkers

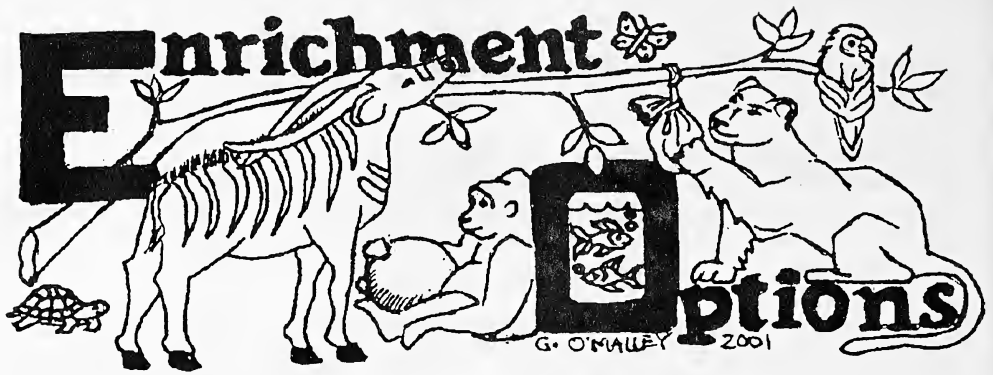
Before being employed and interning at Racine Zoo, the jobs I held were simply ways to make money. I feel that I've had my fair share of bad employers and horrid coworkers over the years. I've been up to my neck in office gossip and negativity.

I have never worked with a better bunch of people than those I shared my days with at the Racine Zoo. Sure, there was some tittering among the staff – politics will always be there no matter where you work. But I also saw a group of people that always kept the animals in mind no matter what they did. If I had a question, I'd usually get a great answer. As an intern, I didn't just learn how to clean up after animals. I learned valuable lessons about the field and the career I am pursuing. I learned to medicate, observe, record vital information, interact with the animals I worked with – and how to work with a group of people. For the first time in my life I saw camaraderie among coworkers and friendship outside of the job. I experienced a support that I never knew could exist at one's place of employment – much less to a lowly intern. I feel that I learned not only what it means to be a good keeper, but what it takes to be a good coworker as well.

Part of being a keeper is watching out for your fellow keepers.

What did I learn at the Racine Zoo? Probably more than I was expected to. I feel that my time spent there was more than learning how to clean up after animals – I prefer to think of it as my first lesson in life after college.

(Editor's note: The Viewpoint Column offers readers an opportunity to their express opinions on topics related to the profession of animal keeping. It is not a forum for expressing disagreements with employers about labor-related issues. Opinions expressed in this column do not necessarily reflect those of AAZK, Inc. or Animal Keepers' Forum. Publication of opinions in this column does not constitute endorsement by AAZK, Inc. or Animal Keepers' Forum. Materials submitted are published at the discretion of the editor.)



*By Dawn Neptune, Utah's Hogle Zoo
and Rachel Cantrell, Disney's Animal Kingdom*

This month we will be saying goodbye to Jan Roletto as co-editor of *Enrichment Options*. She has decided to pursue other career opportunities in the animal world. We certainly thank Jan for all of her hard work and wish her luck in her new endeavors.

After a long selection process, we would like to introduce Rachel Cantrell as our new co-editor of the column. She is a primate keeper and serves on the enrichment taskforce from Disney's Animal Kingdom. Rachel has a real passion for goal-oriented enrichment and strives to promote new and innovative enrichment programs. We look forward to her progressive ideas!

It was such a difficult selection process and we were so impressed with the other candidates' enthusiasm and experience that we have decided to keep them on board as 'Contributing Editors'. Having a pool of Contributing Editors will broaden the base of our knowledge and our ability to contact and work with others involved in exotic animal enrichment in the zoo field. So keep your eyes open for some wonderful articles from our new editors in the future!

At your request...the following is a suppliers listing of companies who provide commercially available enrichment related products. Please feel free to contact us and let us know if we've missed any valuable resources that should be included on a future list. Happy Enriching!

American Excelsior Company
Woodwool substrates
(800) 326-3626
www.amerexcel.com

Boomer Ball®, Inc.
Enrichment devices for zoo animals
(888) 858-9529 or (847) 546-6125
FAX (800) 858-9529 or (847) 546-6185

Animal Management Resources
Training and Enrichment gear
(708) 352-3636 (office)
(708) 369- 3626 (mobile)
www.amrchicago.com
email: meg@amrchicago.com

The Caning Company
Gourds
(800) 544-3373
www.caning.com

Aussie Dog Products
Enrichment devices for dogs, horses and zoo animals
+61 (0)3 9752-3336 FAX +61 (0)3 9758-3020
www.aussiedog.com.au

Doctors Fosters Smith
Pet Supply
(800) 826-7206
www.drsfostersmith.com

BCI Burke Co., Inc.
Playground structures
1-800-266-1250 FAX (414) 921-9566
email: info@bciburke.com
www.bciburke.com

Duracast Products, Inc.
Plastic enrichment products
(800) 683-4116 FAX (863) 638-2443
<http://www.duracast.com/>

Bio-Serve
Enrichment devices for primates, dogs, pigs, rodents
(908) 996-2155 FAX (908) 996-4123
www.bio-serv.com

Edible Landscaping
Edible plants
1-800-524-4156 FAX (434) 361-1916
www.eat-it.com

Ethical, Inc.
vinyl chew toys, squish balls
(973) 484-1000
www.ethicalpet.com

Exotic Creations
Bird Toys
(612) 785-0376
www.exoticcreations.com

Fluker Farms
Herpetological Supplies
(800) 735-8537
www.flukerfarms.com

Injoy Coursing Equipment
Coursing lures
(802) 425-3691 FAX (802) 425-4468
www.injoy-1.com

International Cordage
Rope structures
(602) 252-3155 FAX (602) 252-3053
www.internationalcordage.com

Jeffer's Pet Supply
Pet & Livestock Supplies
(800) 533-3377
www.jefferspet.com
www.jefferslivestock.com

Kracor, Inc.
Plastic enrichment feeders & toys
(800) 255-6335
www.kracor.com
email: customerservice@kracor.com

L. Tillie
Large fiberglass ball with holes
MacDonald Road
Whisterhorse, Yukon Y1A4L2 Canada

The Larson Company
'The Stump' enrichment device
(520) 294-3900 FAX (520) 741-7930
www.larson-usa.com

Leather Elves
Enrichment devices for birds & zoo animals
(781) 331-8557
www.theleatherelves.com

Lomir Primate Enrichment Technologies
Primate enrichment products
(877) 425-3604
www.lomir.com/pet

Omaha Vaccine Company
Pet supplies
800-367-4444 FAX 800-242-9447
www.omahavaccine.com

Otto Environmental
Enrichment devices for zoo animals
(414) 358-1001
www.ottoenvironmental.com

Pacific Fibre and Rope Co., Inc.
Cargo nets and rope ladders
800-825-7673 FAX (310) 835-6781
www.pacificfibre.com
email: pacfib@worldnet.att.net

Primate Products
Enrichment devices for primates
(305) 471-9557
www.primateproducts.com/enrichment/htm

RC Steele Pet Supplies
Pet supply 800-872-3773
www.rcsteele.com

Safari Thatch, Inc.
Bamboo products
(954) 564-0059 FAX (954) 564-7431
www.safarithatch.com

Seeds of Change
Organic seeds for edible plants
888-762-7333 FAX (505) 438-7052
www.seedsofchange.com

SINCO Group, Inc.
Cargo nets
800-243-6753 FAX (860) 632-1509
www.sinco.com
email: sales@sincosala.com

SitStay
Training clickers
800-748-7829 FAX (402) 467-5055
www.sitstay.com

Sweeney Enterprises, Inc.
Automatic feeders
(800) 443-4244 FAX (800) 337-5017
www.sweeney-feeders-direct.com

That Fish Place
Aquarium supplies
888-842-8738 FAX (800) 786-3829
www.thatpetplace.com/intro/mainf.html

Toys for Habitats
Heavy duty plastic balls
(800) 537-8888 or (865) 522-9902
FAX (865) 524-0170
www.rotonics.com
email: rmi_tn@bellsouth.net

Valentine Herpetological Supplies
Herpetological supplies
800-438-7883 FAX (630) 243-8882
www.valentineinc.com

World Champion Horse Equipment
Equine supply
(931) 684-0496
www.ehorseequipment.com

Welburn Gourd Farm
Gourds
(760)728-4271
www.welburngourdfarm.com

Zoomed Laboratories
Herpetological supplies
(805) 542-9988 FAX (805) 542-9295
www.zoomed.com
email: zoomed@zoomed.com

We know there are probably lots of other companies that produce items which could be used in enrichment for many different species. If you have experience with such a company and their products, please let us know their name and contact information (phone, fax, website, email, other) along with what types of enrichment products they produce. You can email the information to me at: akfeditor@zk.kscsxmail.com< We will try to continually pass along to our readers the information we receive.

(Ideas appearing in this column have not necessarily been tested by the editors for safety considerations. Always think ahead and use good judgement when trying new ideas. You are invited to submit materials for the Enrichment Options Column. This might include recipes, toys, puzzle feeders, olfactory enrichment ideas, etc. Drawings and photos of enrichment are encouraged. Send to: AKF/Enrichment, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054. Eds.)

Biologists Find Use for Panda Dung

Question: What eats shoots and leaves, mates once in a blue moon and produces dung that can dissolve household garbage better than anything the experts have ever come up with? Answer: the humble panda.

A research team at Kitasato University has discovered a strain of bacteria in panda droppings that can break down organic garbage more efficiently than any commercially produced garbage decomposer. Similar to that found in natto, the bacteria can even digest the more unpalatable items, such as wheat bran, which are generally recycled or added to animal feed.



Led by professor emeritus Fumiaki Taguchi, the university microbiologists began researching panda dung when they received a bucketful from Ueno Zoo nearly five years ago.

The team detected 270 kinds of microbes, which were divided into 40 categories, according to their ability to decompose fat, protein and sugar. The team singled out five strains able to survive 70-degree plus temperatures. After adding the selected bacteria to a commercial garbage decomposer, the researchers set it to work on 70 to 100 kilograms of vegetable waste and sat back to wait.

Seventeen weeks later, only three kilograms of the original waste remained. The rest had broken down into water and carbon dioxide. By contrast, commercial products have around an 80 percent success rate. (Source: *IHT/Asahi*: April 22, 2003)

Institutions wishing to advertise employment opportunities are asked to send pertinent data by the 10th of each month to: Opportunity Knocks/AKF, 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054. Please include closing date for positions available, and when setting these dates keep in mind that because of bulk-mail, most readers do not receive their AKF until the middle of the month or later. There is no charge for this service and fax or e-mail listings of positions which become available close to deadline are accepted. Our Fax is (785) 273-1980; e-mail: akfeditor@zk.kscoxmail.com< Listing may be sent as MS Word attachment. We are no longer located at the Topeka Zoo, so please note new address to avoid delays in processing.

Mammal Keeper - The Nashville Zoo at Grassmere - immediate opening in the Mammal Department Please send a cover letter and resumé to Human Resources/SR, Nashville Zoo, 3777 Nolensville Road, Nashville, TN 37211 or fax to 615-333-0728. **Closing date is 3 July 2003.**

Requirements: A degree in biology or related field is preferred. Education may be substituted for experience. Applicants should have one (1) year of experience in the zoo field including animal husbandry, exhibit repair and modification, training and enrichment programs. Other requirements include a willingness to interact with the public in a positive manner and assist in the development of research and training programs.

Mammal Keeper/Interpreter - The Academy of Natural Sciences/Philadelphia, a non-profit natural history museum. Please send cover letter, resumé to J. Genovesi, 1900 Ben. Frank. Pkwy, Philadelphia PA 19103-1195 or e-mail same to genovesi@acnatsci.org. No phone calls please.

Responsibilities: Seeking an individual to join their dedicated, professional keeper staff. This person would be primarily responsible for the daily husbandry of its mammal collection. In addition, they would assist in the daily care of the reptile and bird collections and any temporary exhibits as needed. Includes: 1) Daily care of over 100 animals, including cleaning, feeding, enrichment, and maintaining an organized healthy center; 2) Daily care of any temporary live animal exhibits; 3) Schedule, train and supervise volunteers; 4) Keep daily records; 5) Act as interpreter for public and perform daily shows; 6) Provide medical and special treatment for animals, as needed under supervision of Manager; 7) Reports to Manager for all daily chores and responsibilities; 8) Reports to Director for boarder issues regarding performance and departmental goals and development; and 9) Attends conferences on exotic animal husbandry and remains current on all dietary, housing and medical changes in the field.

Qualifications: 1) Bachelor's degree and at least two (2) years experience with exotic animals, excluding pets; 2) Ability to lift 50 lbs. and complete daily labor intensive tasks; 3) Ability to work with other staff and supervise volunteers of all ages; 4) Ability to follow instructions and work with minimal supervision; 5) Ability to organize and accomplish complicated tasks; and 6) Must have valid driver's license and good driving record. Good benefits. Monday thru Friday, rare nights and weekends. Salary range: \$23,000-\$26,000.

Veterinary Technician - The Oakland Zoo, California - Part Time/three days per week, including some weekend and holiday work.

Send cover letter and resumé and three (3) employment references to: Dr. Karen Emanuelson, P.O. Box 5238, Oakland, CA 94605. You may also fax it to (510) 636-9619 or email to karen@oaklandzoo.org< **Position open until filled.**

Requirements: Licensed veterinary technician preferred with zoo or exotic animal experience but would consider applicant with strong clinical background. Needs to be proficient in anesthesia, radiology, surgery, pharmacology and animal restraint. Should also be knowledgeable in parasitology, hematology, blood chemistry, urinalysis, sample collection and shipment of laboratory samples. Computer skills in Medarks and Microsoft Word preferred. Must be organized, self-motivated, communicate well and be able to work well alone and with others.

Responsibilities: Assist veterinarian with medical procedures, administer treatments; care for hospitalized animals; perform in-house lab work; Medarks data entry; hospital management to include housekeeping, inventory ordering and equipment maintenance. Would work closely with Animal Management staff; supervises volunteers and other duties as necessary. Salary range \$10.50 - \$13.50/hr.

Zookeeper/Large Mammals (4 positions) - The Toledo Zoo, Ohio

Send resumé to: Re: Large Mammal Zookeeper, Human Resources, The Toledo Zoo, P.O. Box 14130, Toledo, OH 43614-0801. EOE.

The Toledo Zoo is currently undergoing expansion for an avian/hoofstock mixed species exhibit, in addition to a diverse large mammal collection. Four zookeeper positions are available in the care, feeding, observation and record maintenance of hoofstock and large mammal collection.

Responsibilities: Positions require working in a free-contact environment with elephants, in addition to working with other hoofstock. Also requires hoofstock experience. An interest in working with elephants considered a plus, but not necessary. Positions will require working varied shifts during the spring and summer months. Starting hourly rate is \$12.10 with an excellent benefit package.

Requirements: Prefer candidates with a degree in biology/zoology or related field, and require one (1) year work experience with a zoo mammal collection. Must have a valid driver's license and be insurable by the Zoo fleet insurance carrier.

Associate Curator of Large Mammals - The Toledo Zoo, Ohio

The Toledo Zoo is currently undergoing expansion for an avian/hoofstock mixed species exhibit, in addition to a diverse large mammal collection. For consideration for this position, submit resumé to: Nancy Foley, Director of Human Resources, The Toledo Zoo, P.O. Box 140130, Toledo, OH 43614-0801; email: hr@toldeozoo.org<

Responsibilities: Assisting the Curator in planning and coordinating the care, diet, record maintenance and propagation of a diversified large mammal collection. Will also supervise staff and coordinate the maintenance of exhibits. **Requirements:** Bachelor's degree in biology or related field, a minimum of two (2) years experience in a zoological setting, or an equivalent combination of education and experience. Must have one (1) year's supervisory and previous hoofstock mixed species exhibit experience. Must have a valid driver's license and be insurable by the Zoo's insurance carrier. This is a full-time position with a competitive salary and a attractive benefit package.

Zoo Keeper/Grasslands - Audubon Zoo, New Orleans, LA

Send resumé to: Director of Human Resources, Mike Burnett, 6500 Magazine St., New Orleans, LA 70118 or email to: mburnett@auduboninstitute.org<

Requirements: Good written/oral communication skills and the ability to work effectively in a team-oriented environment. Associate's degree in biology or related field and one (1) year experience preferred or equivalent combination of training/experience in the care of mammals, preferably hoofstock, carnivores and primates. All candidates must have the ability to lift 80 lbs. and a willingness to work outdoors. A willingness to work weekends, holidays, and/or overtime is also required.

General Working Supervisor - Mammal, Reptile & Bird Depts. - Out of Africa Wildlifepark, AZ

Please mail or fax resumé to Dean Harrison, Out of Africa Wildlifepark, 9736 No. Ft. McDowell Rd, Scottsdale, AZ 85264. Phone (480) 837-6683, Fax (480) 837-7379. Visit our website at www.outofaficapark.com<

Position open until filled.

Requirements: Must have degree, four (4) years management, good people and communication skills. Experienced caregiving for many types of species, able to speak publically to large audiences, while interacting with animals in a full contact setting is necessary. Lifting up to 100 lbs may be required. Weekend and holiday work is necessary, according to shift. Salary depends on experience. Full benefits.

Elephant Handler - Natural Bridge Zoo, VA

Send resumé to: Natural Bridge Zoo, P.O. Box 88, Natural Bridge, VA 24578 or Fax (540) 291-1891 or phone (540) 291-2420 or email NaturalBridgeZoo@hotmail.com<

Responsibilities: The care and husbandry of two female African elephants (19 years old) in free contact. **Requirements:** Minimum of three (3) years experience working with elephants. Must be able to do rides, demonstrations and give talks to the public. Looking for an eager, energetic, friendly, self-motivating person. Housing available.

Aviculture Interns

For more information on internships at **KBCC**, please send a resumé, cover letter, and the names and contacts of three (3) references to: Tracey Goltz P.O. Box 39 Volcano, HI 96785 or fax: 808-985-7034. **OR**, for more information on internships at **MBCC**, please send this information to: Mary Schwartz 2375 Olinda Road Makawao, HI 96768 or fax: 808-572-3574. For the Hawaii Endangered Bird Conservation Program at the Keauhou Bird Conservation Center (KBCC) on the Big Island of Hawaii and the Maui Bird Conservation Center (MBCC) on the island of Maui.

Responsibilities: Daily tasks include husbandry duties such as: diet preparation, aviary and facility maintenance, behavioral observations of breeding birds, grounds keeping, predator control. **Requirements:** Applicant must be able to live with several roommates in a remote area and should show enthusiasm for work with captive endangered Hawaiian birds. Applicant must have a valid driver's license and health insurance. Internships last for a 3-6 month period. Interns receive \$20/ day stipend plus housing. **Please, no phone calls or emails.**

Service Opportunities or Internships

See additional information and application at our website - www.tigercreek.org < Commencement date: Open. Duration: Month by Month. Interested in learning more about big cats and a career path? Consider a service opportunity at TCWR. Two (2) positions currently available at Tiger Creek Wildlife Refuge, Tyler, TX. Interns are utilized for animal care positions through a qualification system. We provide: Room & Board, Materials and Curriculum, Indoctrination and Safety Training, Opportunity for full-time paid animal keeper positions (after training).

Marine Mammal Internship

Interested candidates should submit a cover letter and resumé, transcripts, three (3) letters of recommendation, and an application from our website at www.njaquarium.org. Please submit materials to New Jersey State Aquarium, c/o Nicole Begley, One Riverside Drive, Camden, NJ 08103. **Responsibilities:** Learn daily activities involving animal care and training with our Seal Team. Duties include food preparation, exhibit cleaning, creating enrichment devices and observing training. **Requirements:** Candidates should be comfortable with public speaking, have course work in biology/psychology, prior animal experience, be able to work outdoors, and lift 50lbs. Interns are required to complete a minimum of 120 hours and must be registered for college credits in either a two or four year school. Internships may be completed during spring, summer, or fall sessions. All intern positions are on a volunteer basis and are unpaid

Internship Opportunities - National Aquarium in Baltimore

To apply for any of the following internship positions go online at www.aqua.org/education/internships to obtain an application form. A complete application includes contact information, answers to brief statements listed, and a copy of college transcript. Complete applications should be sent to: National Aquarium at Baltimore-Internships, Pier 3/501 East Pratt St., Baltimore, MD 21202.

Application Deadline: ongoing - 1 November 2003 for January and Spring terms of 2004; 1 April 2004 for Summer and Fall 2004 terms; All interns must complete a minimum of 120 hours of work within the selected term. Interns must receive college credit for their internship. Internships are unpaid. For further information contact the National Aquarium in Baltimore's Internship coordinator at intern@aqua.org or call (410) 576-3888.

Aquarist Intern

Responsibilities: The selected candidate will assist the Aquarium aquarist staff with daily care of the Aquarium's invertebrates and fish. Assist with tank maintenance and cleaning; Prepare daily diets and perform daily feedings; Assist in the maintenance of back-up areas; Conduct precise record keeping; Perform special projects to be determined by the aquarist staff. **Requirements:** College juniors or seniors enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field. Must be able to lift 50 lbs, climb up a 6' ladder, and be able to squeeze across a 15' long x 12" wide platform.

Aviculture Intern

Responsibilities: The selected candidate will assist the Aquarium aviculture staff with daily husbandry activities in the South American Rainforest exhibit. Assist with and perform diet preparation and distribution; Conduct animal observations; Assist in the cleaning of holding areas, kitchen, and food prep areas; Provide enrichment to the aviculture collection; Perform special projects as determined by the aviculture staff. **Requirements:** Interest in working with birds. Enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science, or a related field.

Herpetology Intern

Responsibilities: Tend the "Hidden Life" exhibits (large wall terrariums where small, neotropical lizards, frogs, snakes and invertebrates are on public display); Mist and clean the off-exhibit colony of small arboreal lizards; Mist, clean and otherwise help tend the large, off-exhibit collection of neotropical frogs; Prepare diets for and feed the on and off-exhibit iguanas and tortoises; Tend the locust (live food) colony, orb-weaving spiders and colonies of non-venomous exotic arthropods (wood and hissing roaches, millipedes and walking sticks); Assist in the maintenance of the live food cultures (fruit flies, springtails, crickets, rats, mice); Conduct and record animal observations; Perform special projects as determined by the herpetology staff. **Requirements:** Must be enrolled in an accredited college, pursuing a degree in Biology, Zoology, Animal Behavior, Ecology, Environmental Science or a related field. Must be comfortable working with frogs, lizards, rodents and terrestrial arthropods.

Horticulture

Responsibilities: The selected candidate will assist the Aquarium horticulture staff with daily activities. Assist with care of plants in the Rain Forest exhibits; Conduct plant maintenance, fertilization, propagation, and transplantation; Assist in display development; Perform special projects as determined by the horticulture staff. **Requirements:** Must be enrolled in an accredited college, pursuing a degree in Biology, Ecology, Environmental Science, or a related field.

Marine Animal Rescue Program (MARP) Intern

Responsibilities: The selected candidate will aid in all aspects of marine animals rescue program (MARP) operations, which involves the rescue, rehabilitation, and release of stranded marine mammals and sea turtles and implementing outreach efforts of the Aquarium's Ocean Health Initiative. The selected candidate is also responsible for technical and clerical assistance for the Conservation Department staff as necessary. **Duties include:** Animal Care – participating in rescue and release trips, daily feeding, medical treatments, facility maintenance including cleaning and water changes, behavioral observations, and record keeping; Outreach – learning to interpret the MARP artifacts and conservation messages and participation in seasonal outreach and public education programs at the Aquarium and off site; Other duties as assigned – field work, etc. **Requirements:** Must be college junior or senior majoring in environmental science or related field with course work in biology and ecology. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work.

Marine Mammal Trainer Intern

Responsibilities: The selected candidate is responsible for providing support to the marine mammal training staff. This internship's primary purpose is to teach the intern training theory. *There is limited hands-on animal contact during the internship.* **Duties will include:** Prepares daily animal diets and dispenses vitamins as instructed; Responsible for the cleanliness and safety of all animal back-up areas; Assists in training, husbandry, and medical sessions; Participates in pre-show and pre-session preparations; Periodically participates in sessions involving swimming during enrichment and play sessions – no animals involved; Other duties as assigned. **Requirements:** Must be college junior or senior majoring in life science or related field. Must have a basic understanding of marine mammal natural history. Must have good swimming skills. Must work well as a team member. Summer and January terms require 40 hours per week of work for 4 weeks. Spring and fall terms require 8 hours per day, one day per week of work.

Water Quality Lab Intern

Responsibilities: The selected candidate will assist in the water quality testing of all fish and mammal systems throughout the aquarium. Duties include testing water for salinity, pH, ammonia, nitrite, alkalinity, and copper according to lab procedures, and recoding neat, accurate data. The selected candidate will work closely with the Lab Technicians and the Animal Husbandry staff. **Requirements:** Must be college junior or senior with general biology and chemistry work. Strong math skills and computer proficiency preferred. Must be available to work mornings.

Volunteer Opportunities in Belize

Interested persons should contact: Robin Brockett, P.O. Box 431, Belmopan, Belize, Central America; e-mail: wildlifecarecenter@yahoo.com< phone: (501) 614-3043. The Wildlife Care Center of Belize is a private wildlife holding facility for native confiscated and rescued wildlife. One of the primary goals of the Center is to rehabilitate and repatriate howler monkeys and parrots. The Center is non-profit and operates entirely on donations and research grants. Volunteer opportunities exist for responsible, energetic and self-funded individuals. Preference is given to those with zoological experience and an understanding of established guidelines for the reintroduction of wildlife. Volunteers must commit to a minimum of two weeks (longer periods are preferable), follow directions well, and be capable and confident working alone. **Responsibilities:** Three to five days of training are required before working alone; Long work days – generally 6 a.m. to 6 p.m.; Demanding physical labor and lots of walking; Hot, humid, buggy conditions – rain and mud during the wet season; Work may involve collection of natural food items, frequent feedings, behavioral data collection, fieldwork and camping depending on time of year, construction and maintenance work – chopping bush, cage building, construction of caging, maintenance of buildings and clearing trails. Expect very little “hands-on” with animals. Fieldwork is generally conducted between February and June of each year. **Requirements:** Proof of a negative TB test or vaccination within 6 months of arrival; Resumé and e-mail addresses of two (2) references; Current passport; Sufficient funds for the time period; Minimum two-week commitment but longer is preferred; Healthy, physically fit, and a non-smoke; Must be able to follow verbal and written instructions, follow protocols exactly and work well alone; No vaccinations are required, however malaria prophylaxis is recommended. **General Expenses (Approx. U.S.\$:)** Airfare varies – direct flights available on American, US Airways, TACA or Continental from Miami, Houston, Dallas and Charlotte, N.C.; Departure tax \$40.00; Taxi from airport to bus station in Belize City \$20.00; Bus fare to Monkey Bay Wildlife Sanctuary \$6.00; Camping at Monkey Bay \$5.00/night; Meals run between \$3.00 - \$10.00 each - Monkey Bay offers some meals with advance notice, or there are several restaurants within walking distance. No cooking or refrigeration is available; Over one month stay requires an extended visa at a cost of 25.00 per month.

*Positions posted with AAZK, Inc. may also be found on
our website at www.aazk.org*

*Also, you may want to check out the AZA Member Institution job listings
at <http://www.aza.org>*

AAZK Membership Application

check here if renewal []

Name _____
Address _____
City _____ State/Province _____ Zip _____

U.S. Members

\$35.00 Professional
Full-time Keepers

\$60.00 Professional
Renew for 2 years & save
Full-time Keepers Only

\$30.00 Affiliate
Other staff & volunteers

\$30.00 Associate
*Those not connected with
an animal facility*

**\$60.00 or up - Individuals
Contributing/U.S.**

**\$100.00 or up
Institutional/U.S.**
*Organizations/Institutions
(requires Board approval)*

International Members
\$50.00 International
*All members outside U.S. &
Canada regardless of category*

Canadian Members

\$35.00 Professional
Full-time Keepers

\$60.00 Professional
Renew for 2 years & save
Full-time Keepers Only

\$35.00 Affiliate
Other staff & volunteers

\$35.00 Associate
*Those not connected with
an animal facility*

**\$60 or up - Individuals
Contributing/Canada**

**\$100.00 or up
Institutional/Canada**
*Organizations/Institutions
(requires Board approval)*

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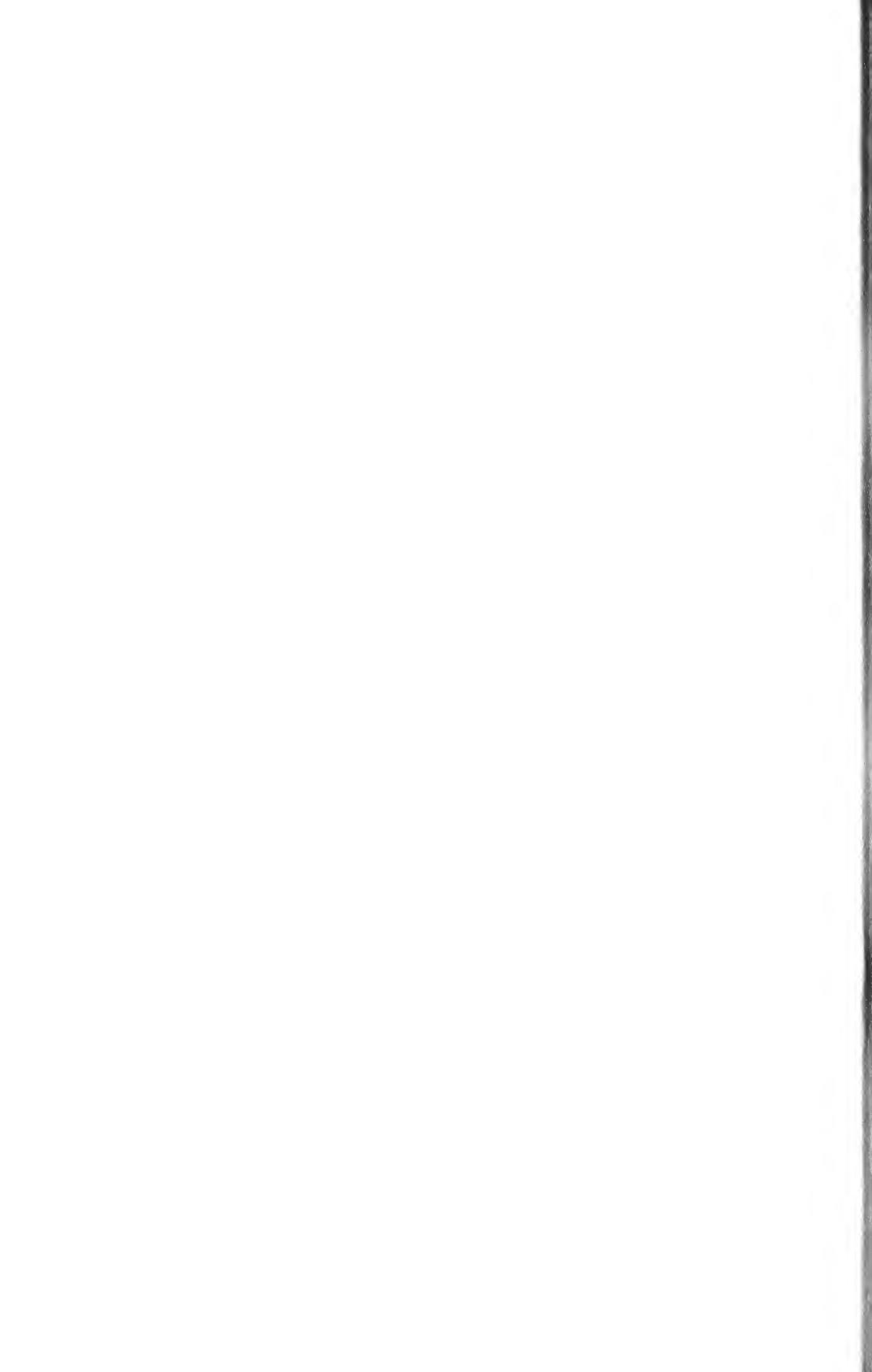
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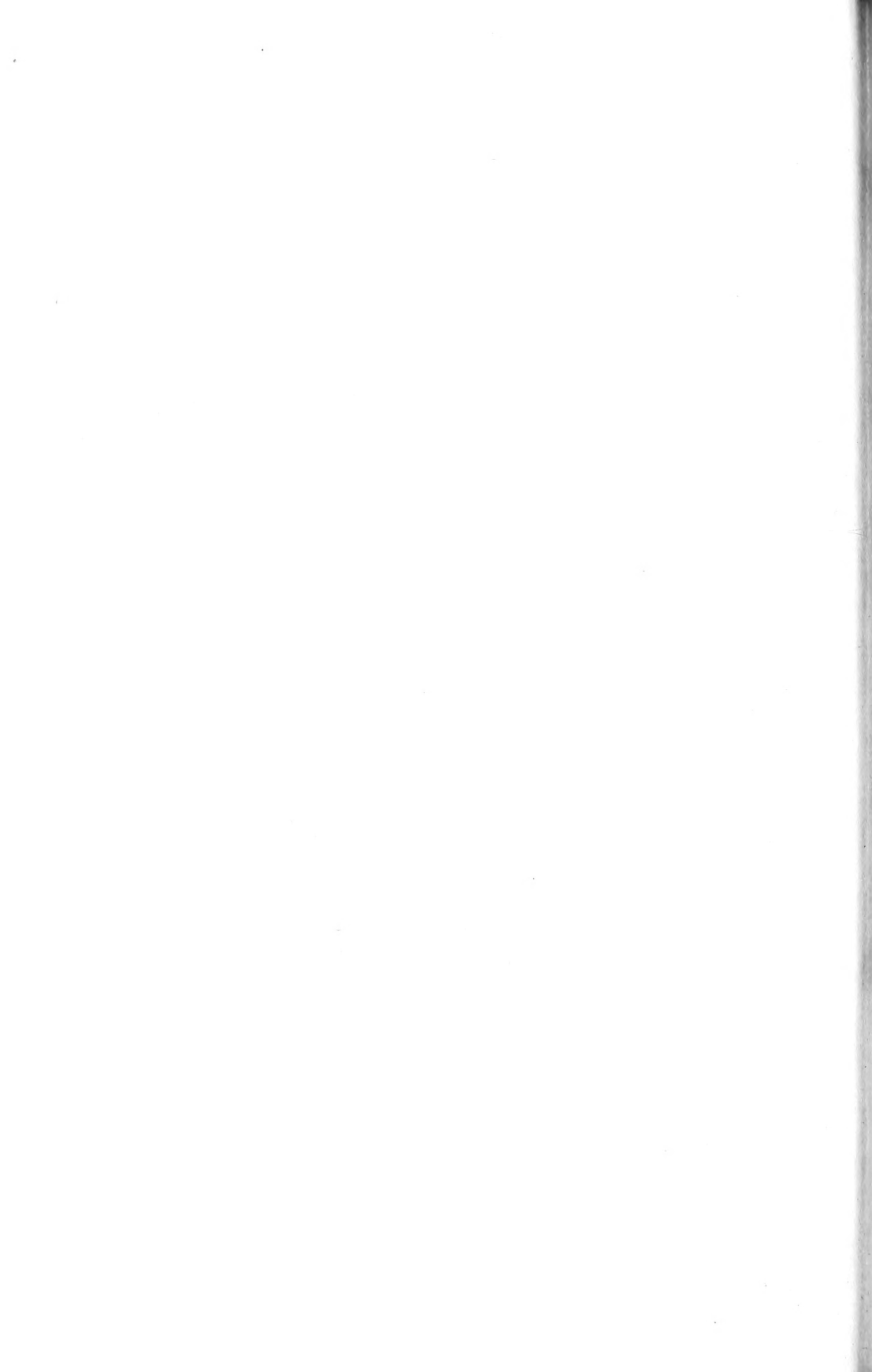
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